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ORIGINAL LECTURES.

SYMPATHETIC OPHTHALMIA.

An Abstract of a Clinical Lecture Delivered at the Jefferson Medical College Hospital.

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THE two cases now before you we wish you to study carefully, and trust that the picture presented by that small, anæmic boy, with his downcast face, peculiar, haggard expression, and closed eyelids will impress itself so indelibly upon your minds that it will not readily be effaced. That, Gentlemen, is one of the most typical cases of sympathetic ophthalmia we can bring before you.

The history of the case is, briefly, as follows: About December 15, 1883, the lad, while cutting a cord with a sharp-pointed knife, accidentally punctured the left eye. The wound, as you see, is in the ciliary region, near the cornea, in the inner and lower quadrant, on the nasal side of the eyeball, at least five millimetres in length. Very little hemorrhage followed the injury, neither was there any pain at the time. The day following, vision became hazy and sight began to disappear; traumatic cataract developed; serous iritis followed, occluding the pupil. There can be no doubt that the inner coats of the eye, especially the choroid, by its continuity of tissue, became inflamed and their structures destroyed, or at least so invaded by exudative products—leucocytes, possibly micrococci—as to injure their normal structures. The treatment instituted was bandages and cold applications.

Inasmuch as there was not much pain in the eye—although blind—the boy was permitted to run about, and on January 2d was sent to school. Two days after this, without any premonition of trouble in the right eye—the uninjured one—the lad suddenly found objects enveloped in a haze; this condition grew rapidly worse, and in two weeks only qualitative perception of light remained, *i. e.*, could only tell the difference between day and night. In examining the left eye, you see the cicatrix of the wound, the grayish-green color of the iris—balloon-shaped, the pupillary space filled by a mass of lymph, the diffused pink color of the sclerotic—due to congestion of the small arteries, the photophobia, and some lachrymation.

The same clinical picture is seen in the right eye—possibly a greater deposit of lymph in the anterior chamber, and a darker tint to the sclerotic vessels.

Relative to the treatment in this case, nothing can be done to restore vision; the lad is hopelessly blind. We can only alleviate symptoms. For the irritation of the eyelids, a mild astringent lotion, such as acid. borac., grs. iij, to aq. camph. and aq. destil. aa f ʒss. If we wish to use atropiæ sulph., to relieve the iritic pain, we can combine atropiæ sulph., gr. j, with ung. boroglyceridi, ʒiij. Internally, tonics and good food, to keep up the

muscular tonus of the general system. In the earlier inflammatory stage, probably calomel, grs. j to ij, guarded by opium, forced to salivation, might have modified the virulence of the disease. The proper course to have pursued should have been the enucleation of the injured eye, as a prophylaxis.

This man was injured April 4th, by a chip of steel off a chisel—seventeen days ago. The wound is in the ciliary region, on the nasal side of the eyeball, just below the tendinous attachment of the internal rectus muscle. Already do we find a slightly hazy cornea, circumscribed ciliary injection, a wound six millimetres in length, in which the iris is incarcerated, giving the pupil an ovoid shape, notwithstanding the fact of its being under the influence of a mydriatic. An ophthalmoscopic examination revealed a delicate haze of the cornea, lens clear, but vitreous turbid, not allowing the details of the fundus to be defined; but down and in toward the nasal side of the fundus, a few lines beyond a point corresponding to the lower lip of the wound, we obtained a whitish reflex—no doubt the foreign body covered with exudative material. No untoward symptoms have become manifest other than slight twitchings of pain through the eyeball, which are at times reflected to the infraorbital nerve. Vision almost *nil*. No photophobia. The right eye is normal in every respect.

As regards the treatment, what shall be done? When we recall the lamentable condition of the small lad, we know of only one remedy that will protect the quiet eye, and that is, enucleation of the injured one. Before the stage of irritation has developed we can enucleate with safety. If we were to wait till vision became blurred, or serous iritis developed, then surgical interference would not only be too late, but might aggravate the inflammatory condition of the sympathizing eye; or, again, as has often been found, the primarily injured eye might remain the better of the two.

We will not detain you by reviewing the different theories of sympathetic ophthalmia—as to whether the probable route to the sympathizing eye is by the optic nerve, or through the ciliary nerves, or by way of the perineural lymph-spaces, or through the medium of the uveal tract. But when you have a patient wounded in the ciliary region always give a guarded prognosis; look upon it as an injury fraught with the greatest danger, and which may culminate in the most serious consequences.

The patient has refused to submit to the operation. We shall order him a solution of atropia, grs. iv to ʒj. Internally, we shall give him hydrarg. chlor. mit., grs. ij, pulv. opii, gr. ¼, twice daily. This treatment to be watched. If the eye becomes painful, leeches will alleviate.

P. S.—The patient was brought to the hospital May 21, 1884, by his attending physician, Dr. Fretz, suffering

with the following conditions: Eye much inflamed, cornea hazy, no reflex from fundus obtainable, marked circumscribed ciliary injection, dread of light, excessive lachrymation, tenderness on pressure, pain extending down track of infraorbital nerve—this pain has been very severe at night for the last ten days. The patient consented to have the eye enucleated, which was then done.

The eye was opened. The vitreous turbid; a large, semi-organized blood-clot and exudation in the region of the wound. Imbedded in the exudation was found a flat, rectangular piece of steel, 4 x 6 millimetres. The lens transparent; ciliary bodies and peripheral part of iris much inflamed. The optic nerve and macular region to the aided eye did not seem to be swollen. No sympathetic symptoms in right eye.

ORIGINAL ARTICLES.

STUDY OF THE PATHOLOGICAL CHANGES OCCURRING IN TRIFACIAL NEURALGIA,

WITH THE REPORT OF A CASE IN WHICH THREE INCHES
OF THE INFERIOR DENTAL NERVE WERE EXCISED.¹

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AN examination, somewhat extended, of the literature relating to neuralgia of the fifth nerve has shown that in those cases in which resort has been had to the employment of surgical procedures as methods of treatment, no investigations, or, if any, very incomplete investigations have been made to determine the character of the pathological changes which have been present and upon which the morbid conditions have been founded. Thus, of twenty-four cases reported by Mr. Thomas F. Chavasse to the Royal Medical and Surgical Society of London, in which surgical operations had been performed, but two reports, and these very incomplete, were made of the condition of the nerve involved. The absence of these investigations has interfered, it seems to me, materially with any radical progress in the application of remedial measures and has resulted largely in the use of those which are empirical in character. Believing that we can arrive only at rational methods of treatment by increasing our knowledge of the pathological conditions which exist in cases of chronic prosopalgia, I have ventured to submit the report of a case in which free neurectomy was performed, and in which a careful study was made of the diseased structure removed.

The patient, a German woman, aged 50 years, consulted me eight years and a half preceding the operation, which was performed on the 27th of August, 1883, for intense neuralgic pain involving the left inferior dental nerve. The pain began in the second bicuspid tooth, which was in a state of caries, and passing backward gradually implicated the remaining teeth, which were sound. The carious tooth was removed without affording relief, and subse-

quently the remaining teeth with the same result. The treatment instituted at this time afforded but slight relief, and the patient passed from under my care. After an interval of four years she again consulted me, having in the meantime received treatment from a number of physicians, with but transient relief. I found on examination that the area of pain had increased, and that the periods of cessation were diminishing. The prolonged use of various anti-neuralgic remedies, combined with the application of the constant current of electricity availed but little, and I suggested neurectomy, which she declined, and again sought other advice.

Four years and a half later she returned and stated that she was prepared to submit to any operation I deemed necessary to perform, as her life was a burden. She had fallen into the hands of empirics, and had, as she expressed it, passed through "fire and water" without relief of the pain, which was now constant and excruciating.

The disease had now assumed the epileptiform variety, the paroxysms occurring at intervals of a quarter and a half of a minute, and were excited by a breath of air, the touch of the fingers, or the placing of food or water within the mouth in contact with the side affected.

On the 27th of August, 1883, I performed neurectomy, removing three inches of the inferior dental nerve including all of it which was contained within the canal and a portion extending beyond the mental foramen shown in Fig. 1. The external surface of the bone was exposed by an incision carried from the middle of the posterior border of the ramus along the base to a point beyond the position of the mental foramen and reflecting the flap.

A one-half inch trephine was applied over the position of the inferior dental foramen and a disk of bone, including the outer table, was removed. The mental nerve was dissected to the distance of a half inch beyond its point of exit from the foramen and divided. A dental burr attached to the surgical engine was now used to enlarge the mental foramen and release the nerve. Traction was made upon the nerve at the point where it was exposed by the trephine and it was withdrawn entire from the canal. Before dividing it posteriorly it was drawn down so that the division might be made as high up as possible and the stump was pushed back until it was entirely beyond the foramen. The artery, which was torn in the manipulations employed to remove the nerve, was divided and the end twisted—no hemorrhage followed. An examination of the nerve in its position in the canal showed that it was swollen and reddened, and the artery appeared to be so compressed and flattened that it occupied very much less of its relative space in the canal. The facial artery was caught by an acupuncture needle and held until the completion of the operation, when a ligature was applied. The wound healed in six days. The patient was free from pain, and, with the exception of one or two spasms of pain occurring apparently in the stump of the nerve, she has remained so until this date, nearly nine months.

The opportunity being presented of studying the

¹ Read before the American Surgical Association, May 2, 1884.

conditions which follow the removal of so large a section of the nerve, I made, ten weeks after the operation, two careful examinations of the parts supplied by it, the last examination being made in conjunction with Dr. J. T. Eskridge, of Philadelphia. On the day of this examination, November 9, 1883, the weather was damp, and the surrounding atmosphere 65° F. Over the external surface of the lower lip, comprising the area of terminal distribution of the mental branch of the left inferior dental nerve, a sharply defined zone of complete anæsthesia and analgesia was found. This anæsthetic area was irregular in shape, and measured transversely at margin of lip $1\frac{3}{16}$ inches; at the lower border of the zone (a slightly curved line) $\frac{5}{16}$ of an inch; vertically $1\frac{1}{2}$ inches; transversely at the middle $1\frac{1}{16}$ inches; border over symphysis (slightly convex line), $1\frac{5}{16}$ inches; at external margin towards ramus (slightly concave line), $1\frac{5}{16}$ inches; over this zone the patient was unable to recognize contact of cold or hot substances. Over a small portion of the lip, and outer surface of the alveolar border, corresponding to the anæsthetic area just described, anæsthesia and analgesia were complete. The inner surface of the alveolar border was everywhere sensitive. Over a limited area, extending forwards from the position of the inferior dental foramen to the posterior border of the zone of complete anæsthesia, the ability to recognize tactile sensations, painful impressions, and the contact of heat and cold was diminished. Considerable swelling was noticeable on the left side of the face, with slight drooping of the eyelids, and partial obliteration of the vertical fold extending downwards from the angle of the mouth. The surface of the skin was roughened, and presented the appearance of a somewhat diffuse capillary congestion. Formication was present, and was especially marked on passing from the cold air outside to the warm rooms of the house.

The following surface temperature observations were made, beginning at 11.29 A. M., and continuing until 12.32 P. M.:

Axillary temperature: right, 98° ; left, 98° .

Over infraorbital foramen: right, 98.1° ; left, 98.1° .

Over inferior dental foramen: right, 97.7° ; left, 97.9° — $\frac{2}{10}^{\circ}$ difference.

Near upper border of lower lip: right, 97.4° ; left, 97.7° — $\frac{3}{10}^{\circ}$ difference.

Incisive fossa about the middle of anæsthetic zone: right, 96.4° ; left, 97.2° — $\frac{8}{10}^{\circ}$ difference.

From the above examination, information was gained as to the area of surface supplied by the terminal branches of the inferior dental nerve, and which, in diseased conditions of the nerve, become the seat of the painful impressions. The existence of slight paralysis of the orbicular and cheek muscles would seem to indicate that by reason of the free anastomoses (correctly speaking unions, or connections) between the terminal branches of the fifth and facial nerves, the excision of a branch of the former had apparently affected the function of the terminal branches of the latter. The incision made did not divide any of the larger branches of the facial nerve, and certainly none of those distributed to the orbi-

cular muscle of the eye. In the same manner as above, may we not explain the painful spasm which occurs in prosopalgia of the epileptiform variety, the facial muscles acting under the motor impulses created by the transmission of the morbid impressions from the diseased sensitive, to the normal motor nerve?

The slight elevation in temperature noted at different points in the anæsthetic zone is in accord with the physiological results obtained after nerve-sections, although Dr. S. Weir Mitchell observes, in his work on *Injuries of Nerves* (edition of 1872), that he is not aware of any clinical observation which records the early rise in temperature after total section of the main nerve of a member. The elevation in temperature is explained as the result of dilatation of the bloodvessels caused by the vaso-motor paralysis.

The portion of nerve excised was given for careful examination to Dr. G. de Schweinitz, of Philadelphia, who submitted the following report:

"Macroscopically, the portion of nerve presented for examination did not exhibit any changes except, perhaps, a slight thickening beyond what is usual in the normal inferior dental nerve. The thickest portion of the excised nerve corresponded in size to a No. 7 bougie (French scale), and the thinnest to that of a No. 6. The nerve was hardened for section by placing it in Müller's fluid, and then in ordinary alcohol for two days. Transverse and horizontal sections were made and stained with Klein's carmine and hematoxylin solutions, dehydrated in alcohol, cleared up in oil of cloves, and permanently mounted in dammar. For the purposes of comparison, similar sections of a normal external branch of the radial nerve were made after it had been subjected to a precisely similar hardening process.

FIG. 1.



The portion of the nerve removed.

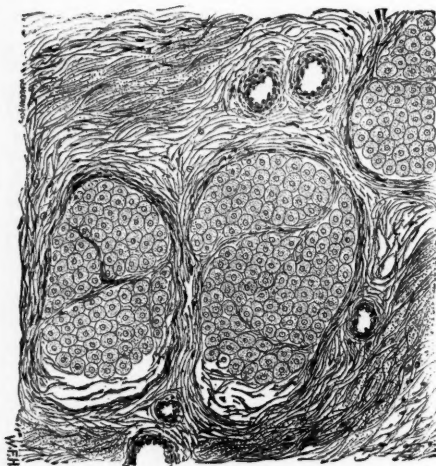
"In Fig. 2, within the perineurium, are seen the cross-cuts of the nerve-fibres, separated from one another by the delicate tissue known as endoneurium, which is here and there crossed by fine trabeculæ of connective tissue subdividing the fasciculus. Each nerve-fibre is composed of a dark, central spot representing the axis-cylinder surrounded by a white circle—the medullary sheath. The whole is enclosed within a double contoured external ring, the sheath of Schwann or neurilemma. The supplying bloodvessels are seen in cross-section in the connective-tissue investments of the nerve.

"Figs. 3 and 4 represent the microscopic characters of the diseased nerve. Some slight increase and thickening of the connective-tissue sheaths investing the fasciculi as well as of the trabeculæ

dividing them is noted, together with a change in their regular arrangement. The walls of the blood-

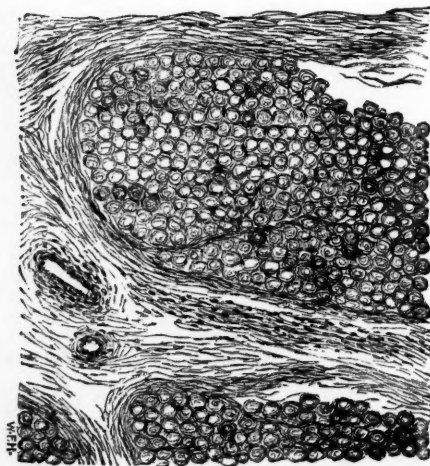
phoid infiltrate. Here and there, scattered through the connective tissue, are small collections of minute,

FIG. 2.



Cross-section of the normal external branch of the radial nerve. Cross-sections of the individual nerve-fibres are seen, showing axis-cylinder, medullary sheath, and neurilemma. The fasciculi are subdivided by trabeculae of connective tissue. Bloodvessels are seen in cross-section.

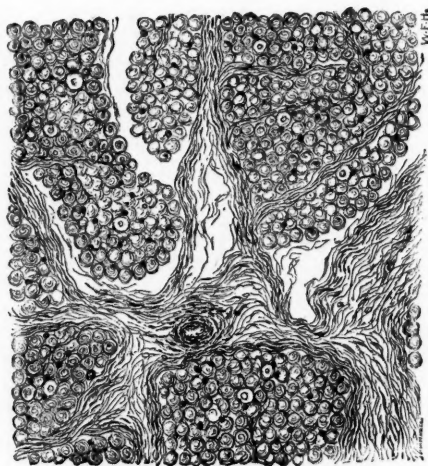
FIG. 3.



Section of the diseased nerve taken from near the mental foramen. The irregular and confused outlines of the nerve-tube are shown, together with the concentric arrangement of the arches. The connective tissue is moderately thickened. Three bloodvessels are seen, two in cross-section, and one longitudinally, surrounded by small-celled lymphoid infiltrate showing thickened walls.

vessels, both in cross-section and in Fig. 3, when viewed in vertical section, are surrounded by a lym-

FIG. 4.



Section of the diseased nerve taken from near angle of the jaw. Changes the same as those above, only less marked. Here and there nerve-tubes of normal appearance are noted. The same concentric arrangement, and also alteration in bloodvessels, is seen.

yellowish-white, glistening dots representing probably foci of fatty degeneration. The chief changes are in the nerve-tubes themselves. The axis-cylinders cannot be satisfactorily demonstrated. When present they are not stained with carmine, and are often apparently entirely wanting. The medullary sheath appears swollen and the cross-cuts of the individual nerve-fibres are not clearly defined and sharply cut, but consist of a confused mass of concentric rings. The sheath of Schwann often has a crumpled appearance. The transverse sections of the nerve-fibres might in many places be not incorrectly compared to the interior aspect of a minute oyster-shell both in shape and by virtue of this peculiar concentric arrangement. Longitudinal sections reveal increase of the nuclei of the sheath of Schwann. The changes thus described show a parenchymatous neuritis, as is indicated by the degeneration in the nerve-fibres as well as changes in the connective tissue of an inflammatory type, as is shown by its thickening and the alterations in and about the bloodvessels. The neuritis is probably also of an ascending nature, as the changes in the diseased nerve are more marked about the mental foramen and grow less noticeable as the angle of the jaw is approached."

It has been observed that the anatomical distribution or rather arrangement of the large nerve-trunks of the body, is such that they are protected by position from injury. Thus, those of the upper and lower extremities are placed, where they enter the parts and are superficial, on the inner aspects—in the forearm and leg they are covered by muscular

masses, and in passing to their terminal distributions they are surrounded by fascial envelopes which more or less protect them. Notwithstanding the protection afforded, there are certain nerves in which chronic forms of neuralgia appear which are very often traumatic in origin. Thus, the sciatic nerve may be readily injured at the point of emergence from the pelvic cavity—the sacro-sciatic notch—by falls and kicks, giving rise to inflammatory conditions and resulting degenerative changes, and in this manner we may explain the frequent occurrence of its diseased states. The median nerve is exposed to injury in deep wounds of palm of the hands by wounds from knives, glass, splinters, etc.

In *The American Journal of the Medical Sciences* for July, 1874, Dr. S. Weir Mitchell reported a case of traumatic neuralgia of the median nerve due to a wound of one of the palmar branches by a splinter. Twenty years after, a bruise of the palm developed intense pain in the course of the terminal branches of the nerve and the splinter was removed. The pain continuing, three-quarters of an inch of the nerve was excised, with permanent relief to pain. An examination of the excised nerve showed marked degenerative changes which had occurred primarily in the nerve-fibres themselves.

Of all of the cranial nerves, the fifth is, by reason of its anatomical distribution and relations, most exposed to injury and to morbid changes. Appearing upon the external surface by large terminal branches, at three exposed points it may suffer injury by blows and falls. Much stress has been, from time to time, laid upon the fact of the passage of the branches of the nerve through bony canals and notches and the contractions of these channels by inflammatory changes have been assigned as the not infrequent causes of painful conditions. A specimen of hyperostosis of the lower jaw in my possession would seem to show that in changes of this character marked contraction does not occur; the hypertrophy in this case was due to syphilitic periostitis, the patient dying of syphilitic gumma of the brain; during life neuralgic symptoms were absent. In cases of phosphorus necrosis of the lower jaw, in which the disease originating in specific inflammation of the periosteum results in the deposit of layers of ossific matter, the foramina of entrance and exit of the inferior dental nerve are not markedly encroached upon, and neuralgic conditions are not a usual accompaniment of the disease according to my observation, which has recently been somewhat extensive. That the presence of the nerve-branches, with bloodvessels in these bony canals, contribute to morbid conditions which have been developed we will discuss further on. It is, I think, in accordance with the conservatism which attends the progress of structural changes to afford protection to the bloodvessels and nerves, in order that nutrition may be maintained.

The direct and extended connections of the nerve through two of its divisions with the teeth, offers, it seems to me, a satisfactory explanation as to the frequent occurrence of neuralgic conditions. Not only may the morbid conditions take origin in the ultimate nerve-twigs which take part in the formation of the pulp, but also in the filaments distributed to the

alveoli and their vascular and sensitive lining membrane. Inflammation of this lining membrane may occur without accompanying caries, and in this manner we may explain the presence of pain in teeth which are sound, and also the temporary relief which follows their extraction.

Inflammation beginning in the twigs of the pulp and permitted to continue, may pass by continuity of structure to the trunk of supply, and gradually involve it. At first, the connective-tissue structures of the nerve become the seat of the inflammatory changes, resulting in hyperplasia and increase in size. The continuance of the inflammatory action results in interference with nutrition, and degenerative lesions are developed. To what extent the interference with nutrition is due to the cutting off of the blood-supply from the accompanying artery by pressure of the abnormally enlarged nerve is a question of interest. And whether the defects of nutrition are entirely intrinsic, resulting from the hyperplastic changes in the nerve itself, is a subject for further study. In the case under examination it will be recalled that the artery, as it lay in the canal with the somewhat enlarged nerve, appeared compressed and its walls collapsed.

The discussion as to the origin of chronic neuralgic affections of the fifth nerve in peripheral or central lesions has taken place from time to time. That grave central lesions in the nerve, or intracranial conditions, may cause intense painful affections cannot be questioned. Dr. Roberts Bartholow, in his *Practice of Medicine*, states that he has observed the most intractable neuralgia, involving the intraorbital branch of the second division of the fifth nerve, which was found, post mortem, to be due to an intracranial aneurism exerting pressure upon the nerve before its exit. The evidence deduced from the great majority of reported cases, however, confirms the belief that the lesions are, in their origin, peripheral in character.

Another question of interest, which has been discussed in connection with neuralgic affections involving the intraorbital branch, has been the involvement of the ganglion of Meckel and the necessity for its removal in operations. This question, it seems to me, should not demand very serious discussion, and the statements which have been made in reported cases have lacked elements of evidence which should give reason for their acceptance. The cephalic ganglia of the sympathetic system, four in number, are all in relation with the fifth nerve through the sensory roots which this nerve contributes to them. It is possible that the roots derived from the nerve-trunk might become implicated by continuity of structure, but we have no evidence that this involvement of the roots leads of necessity to a morbid state of the ganglion, which differs in structure from the nerve-fibres. Further involvement of the ganglion would induce morbid impressions, which would manifest themselves in the branches of distribution, and we should expect to find symptoms in the cavities of the nose and mouth, which receive these branches largely. Our knowledge of the symptoms expressed in the ganglia of the sympathetic system in morbid states is too meagre to permit the acceptance of the opinion that the painful impressions occurring in neuralgia of

the superior maxillary division of the nerve take their origin in the ganglion, and that its removal with the nerve is demanded, in order to secure permanent relief. We do know that the sympathetic system is endowed both with sensibility and the power of exciting motion, but these properties are less active than in the cerebro-spinal system, and are exercised in a different manner.

The propositions which I would submit as the result of the study of the case reported are as follows:

1. That in the large majority of cases of chronic prosopalgia, the infraorbital and inferior dental branches of the fifth nerve are implicated, and that these branches are involved to the exclusion of other branches of the second and third divisions of the nerve.

2. That as the filaments of these branches terminate in the teeth and the alveoli which contain them, we must look for the initial lesions in morbid conditions of these organs.

3. That these initial lesions are essentially inflammatory in character, assuming the form of an ascending neuritis, and that non-interference with the progress of the action results in secondary degeneration, the ultimate expression of which is that of fatty degeneration.

4. That the diffused character of the pain and the painful spasms observed in the epileptiform variety are due to the extensive connections of these branches with those of the facial nerve.

5. That if involvement of the sympathetic ganglia occurs it is secondary in character, and that we have no positive evidence that independent removal of these structures will afford relief in the treatment, or that their removal with the nerve is essential to permanent relief.

6. That the treatment should be divided into that of two stages, primary and secondary. It should consist in the primary stage of the removal of the causes by proper treatment, and the employment of antiphlogistic remedies. Destruction of the nerve-filaments and filling of the cavities, or extraction of the teeth and treatment of the lining membrane of the alveoli should constitute the treatment in the early periods of the primary stage.

Ligature of the common carotid artery as advised by Weinlechner and Patruban, and as has been practised in a number of reported cases, should be performed in the early period of the primary stage before the deposit of plastic matter, in order to be of avail. As the vascular supply to the nerve is derived from the branches of the external carotid, it would appear as sufficient to apply the ligature to this vessel just below the origin of the facial. Owing to the free anastomosis between the terminal branches of the arteries, it would require ligature of both arteries, in order to be completely effective. The ligature of the artery supplying the nerves involved is in accord with a rational method of treatment of the inflammatory condition, and the absence of permanent relief in cases in which it has been employed has no doubt been due to the fact that the operation was not performed at a sufficiently early period.

Stretching of the nerve is an operation which should be performed in the later portion of the

primary stage, and beginning of the secondary stage, after the deposit of exudates; the purpose being not only to destroy the conducting property of the nerve, but to break up the deposit, in order that its removal may be more readily accomplished by absorption. The failure of this method of treatment in cases reported has been due probably to the fact that it has been performed too late, when the ultimate degenerative changes have taken place.

Neurotomy may be regarded as of little, or no value in obtaining anything but the most transient relief, the speedy reunion of the divided nerve soon restoring the morbid conditions. The timely depletion which may follow division in the very early stage may be of service, but nothing can be expected, so far as permanent relief is concerned, in the secondary stage.

I have recently had under my care a case in which the effects produced by nerve-stretching were well illustrated, and which may occur in prosopalgia when treated by this plan. The patient a German, aged thirty-eight, fell in going down stairs, and received a wound of the upper part of the palm of the hand by the breaking of a lamp which he held. Beyond washing the wound nothing was done in the way of treatment. In a few days it healed, leaving a somewhat painful cicatrix. Gradually the pain extended to the thumb and fingers, and was distinctly felt in the terminal distribution of the median nerve, both sides, thumb, index, and middle finger, and radial side of ring-finger. The pain became intense, and the fingers assumed the clawed position, and any effort to extend them gave rise to excruciating pain. Coming to me for relief I excised the cicatrix, dissected out the nerve to the extent of an inch, removed a small piece of glass which lay beneath it and stretched it forcibly; at once this removed a distinct enlargement which existed upon the nerve at the point of wound, and also elongated it. Pain was promptly removed and an anæsthetic condition resulted in the area of distribution of the nerve-branches. At the expiration of four months normal sensation began to return, and is now, two months later, perfect. The result in this case indicates that the stretching had destroyed the power of the nerve to conduct painful impressions, and as well, probably, caused a gradual absorption of the infiltrate. This being in time accomplished the conducting power of the nerve was restored and the morbid condition being removed, the impressions were normal in character.

Neurectomy is the operation which should be performed in the secondary stage, and when the epileptiform variety of the disease is present a careful examination should be made, in order to determine, if possible, the extent of involvement, and excision should be carried beyond that point. It should be a rule to leave none of the nerve in the bony canals, and also in intractable cases to carry the operation to the point of exit from the cavity of the cranium. With regard to the second and third divisions, the foramina can be reached in one operation by the method practised by the late Professor Joseph Pancoast. This operation consists in the elevation of the masseter muscle by a square-shaped

flap over the ramus of the jaw, resection of the coronoid process, ligation of the internal maxillary artery, separation of the points of origin of the external pterygoid muscle, and exposure of the oval foramen and the speno-maxillary fissure. At the former the inferior dental can be divided, and after being exposed by a slight incision can be divided and released at the mental foramen by the surgical burr, and withdrawn entire from the canal. The infraorbital can be hooked down as it crosses the speno-maxillary fissure, divided, and released at its emergence upon the face in the same manner as the inferior dental at the mental foramen.

If in any case I believed, or had evidence by the symptoms, or by the appearance presented in the branches of the inferior maxillary division, that the morbid condition had invaded the Gasserian ganglion, I would not hesitate to enlarge anteriorly the oval foramen by the application of the burr attached to the surgical engine, and by traction draw down the ganglion from its position in the fossa upon the anterior surface of the apex of the petrous portion of the temporal bone, and proceed in a cautious manner to break it up or remove by section with the small blunt-pointed scissors. The primary ligation of the internal maxillary artery precludes hemorrhage from either the meningeal media or parva, the first of which is in intimate relation as it passes through to the foramen spinosum, and the second as it enters the cranial cavity through the oval foramen. The position of the internal carotid artery as it passes from its canal in the petrous portion of the temporal bone into the cavernous groove should not be forgotten, and great care should be taken to avoid injury to it by going beyond and behind the margin of the oval foramen.

Neurectomy, to be successful, should be complete. Incomplete and partial operations not only result in failure, but destroy the confidence of the patient as to the benefit to be derived from operative procedures. I have ventured to bring this subject before the notice of the Fellows of this Association, and I have submitted the report of the results of the examinations in the case under my care, with the hope of stimulating further researches into the pathological conditions which exist in this truly distressing affection. It is only in this way, as I have stated before, that it can be removed from the domain of empiricism, in which it rests without hope, and be placed upon the sure foundation of a rational system of treatment.

CASE OF DERMATITIS HERPETIFORMIS (MULTIFORMIS), AGGRAVATED BY PREGNANCY AND IRREGULAR MENSTRUATION.

BY LOUIS A. DUHRING, M.D.,

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Mrs. M., aged twenty-eight, a resident of St. Paul, Minn., consulted me February 3, 1883, for a chronic inflammatory disease of the skin, involving the entire surface. She was of spare frame, with brown hair, and of a nervous temperament. She gave the following clear and interesting history of

her case: Her ill-health began three and a half years ago, up to which date she had been in good general health; had menstruated regularly and normally, and had weighed one hundred and thirty-five pounds. She had borne a healthy child three years before, without difficulty. The first manifestations were upon the tongue and in the throat, in the form of whitish spots, similar to so-called "canker-sores," which continued for six months, desquamating from time to time, the mouth being so sore and sensitive as to render eating painful. She was in the third month of her second pregnancy when the first sign of cutaneous disease appeared on the flexor surfaces of the right arm and thigh, and on the abdomen, in the form of small, annular clusters of *vesicles*, occupying the space of a five-cent silver piece. The lesions were itchy from the beginning. They spread slowly, new "little water-blisters" coming out from day to day. This process progressed for six weeks, when the body was well covered with eruption, and she was compelled to remain in bed. Three weeks after the attack began *blebs* appeared, accompanied by comparatively slight itching. They ruptured easily and left excoriated surfaces. As gestation proceeded, the disease became steadily worse, being at its height during the fourth and fifth months, at which date *vesicles* and *blebs* of all sizes were very numerous, and the itching intense, accompanied by extensive excoriations and scratch-marks, with more or less oozing and crusting. No treatment used seemed to have any effect in relieving the symptoms.

At this date very curious lesions were noticed on the wrists and on the palms and soles. They were elongate (about an inch in length), rounded (about an eighth of an inch in thickness), firm, whitish, striated elevations, situated transversely on the wrists, the same condition existing on the palms and soles. When opened a non-offensive, cheesy mass "popped out," to use the words of the patient. The contents were not expressed, but were forced out naturally. The lesions were opened every day for several weeks, when they ceased appearing.

At the sixth month of pregnancy the skin cleared off, the lesions disappearing, except a large bed sore, which did not heal until a month after delivery. The skin remained comparatively clear about one week, when small pin-head-sized *vesicles*, soon followed by large, hazelnut-sized *blebs*, again appeared. This crop also manifested itself on the legs and feet, regions hitherto exempt. The *blebs* were all large, very abundant, crowded one another, and were very itchy. Some of the lesions became pustular. Three or four weeks before delivery the whole integument became cedematous, swelled, or "puffed up," as she expressed it. This condition gradually subsided a week or ten days after the birth of the child, which was born healthy at full term, but lived only four days.

After delivery, and for three weeks following, the vesicles and blebs became fewer, the skin becoming again entirely clear of eruption, and she regarded herself as cured. She remained free, however, only a few days, when small *pustules*, pin-point in size, appeared in abundance; these disappeared, and were followed by a crop of mixed lesions—of *pustules* and

blebs. This condition continued, better and worse, during the winter, the disease towards summer locating itself chiefly about the axillæ and groins, characterized now by an offensive, excoriated, at times weeping, crusted surface, with itching. Through the summer the skin of the palms and soles thickened, beneath which pus formed, undermining it. This continued for three or four months.

In August, 1881, she indulged in a bath, just before the menstrual epoch, after which the face became blotchy, bluish, and swollen, giving her "a dissipated look." Vapor baths taken repeatedly for one month completely exhausted her. September 1st the menses failed to appear, and October 1st there was a slight discharge, at which date she again broke out with variously sized *vesicles* and *blebs*, the latter, for the most part, as large as a hazelnut, many of them having puriform contents. There was now much excoriation and crusting, the bed-linen everywhere adhering to the raw skin. Numerous small, pin-point-sized *vesicles*, closely crowding one another, again came out over the whole surface. They were so abundant that a pin-point could scarcely be put down between them. She was "literally covered with them," and this condition, in the form of crops, lasted all winter.

The skin disease later again changed its character, large *blebs* and *pustules* appearing, especially upon the face, which was much swollen.

The menstrual flow remained absent five months (from October, 1881, to February, 1882). Arsenic in large doses, and later electricity, were used, and it was thought that she was benefited by the latter. Improvement continued slowly but steadily up to July, 1882, when suddenly, and without apparent cause, violent inflammation of the hands and feet, with large *pustules* on the palms and soles and on the face, manifested itself. These continued to appear and to disappear, in crops, through the summer and autumn, up to the present date, the lesions being, as a rule, shot-sized, whitish *pustules*, and *vesicles*, closely crowded together over almost the entire cutaneous surface. Her general condition has been variable. On many occasions she has felt ill, weak, very nervous, depressed, with chilly or heated sensations or rigors. On one occasion the tongue swelled and became coated with a puriform exudation, with profuse salivation. Menstruation when present is usually normal. Her weight now is about ninety-five pounds, forty pounds below her former average. The appetite has always remained good. She has been under the care of a skilful specialist in skin diseases for six months, but has failed to receive any benefit.

The present condition (February 3, 1883) is as follows: The whole general surface is the seat of a subacute and chronic inflammatory *erythematous* (somewhat urticarial), *papular*, *papulo-vesicular*, *vesicular*, and *pustular* eruption, the lesions being very markedly multiform. They are pin-point, pin-head, and pea-sized; are thickly studded; are firm, and have a shotty feel, as in the early stage of variola. The skin is everywhere much thickened, and is even tough and leathery, and is markedly pigmented, being of a mottled, reddish, dirty-yellowish,

brownish hue. The eruption is *intensely itchy*. The face and scalp are least affected, but, as stated, the rest of the general surface, including the palms and soles, is well covered with primary and secondary lesions.

The patient was ordered for local use an ointment of precipitated sulphur, two drachms to the ounce, to be applied to the right half of the body; to the left half, an alcoholic solution of coal-tar, diluted one to four or eight parts of water. Internally, a mixture containing sulphate of magnesium, three ounces; bitartrate of potassium, six drachms; precipitated sulphur, one drachm; glycerine, four fluid-drachms; peppermint water, four fluidounces. Dose, a half fluidounce with a gobletful of water before breakfast. Also, a preparation of iron, bark, and arsenic (one minim dose), to be taken thrice daily. At night a mixture of chloral and bromide of potassium. Both local remedies acted happily, and for five days no preference for one or the other was expressed by the patient. A few days later more improvement was observed upon the side where the tarry solution had been used, and this was then applied, full strength, to the whole surface. Both remedies also had immediate and positive effect in relieving the distressing itching. The skin began to improve, and the eruption to decrease within several days after the treatment was instituted, and at the end of a fortnight very decided benefit was noticeable in the condition of both the general health and the skin. She was well enough a month later to return home, since which time I have heard nothing from her.

The history of the case, extending over three years, shows well the protean character and the multiformity of the disease. It shows the simultaneous occurrence at several periods in the course of the process of erythematous patches, maculo-papules, papular infiltrations, vesico-papules, vesicles, blebs and pustules. At other periods vesicles and blebs prevailed; sometimes vesicles and pustules; and occasionally vesicles, blebs and pustules. The lesions were always accompanied by severe itching and more or less burning. Constitutional symptoms at times were marked, consisting of rigors, sensations of alternate heat and cold, and febrile and nervous symptoms. The latter were especially prominent.

The disease of the skin was unquestionably due partly to the depraved condition of general health preceding pregnancy, but more particularly to this latter state itself. It will be remembered that the cutaneous manifestations appeared in the third month of gestation. It was without doubt subsequently kept up by the disordered condition of the menstrual function and the accompanying disturbed nervous system.

At present I shall not consider the disease further than to say that the case may be regarded as representing the multiform variety of dermatitis herpetiformis. Noted at one period, it would have illustrated the vesicular or the papular variety; at another time, the bullous variety; again, the erythematous; while more often, however, the condition was one of multiformity of lesion, including at times the abundant development of peculiar pustules. The

latter phase is that which was first described by Hebra as "impetigo herpetiformis." The vesicular variety has figured conspicuously of late years under the head of "herpes gestationis." In a paper recently read before the American Medical Association, I have described dermatitis herpetiformis at length, giving its characteristic features together with its more prominent varieties or phases.¹ I think both the impetigo herpetiformis of Hebra, and the herpes gestationis of authors, should be placed under dermatitis herpetiformis, both being mere varieties of one pathological process.

The case just considered shows the disease in a severe form, characterized by marked constitutional symptoms; profuse eruption, multiform in character, and appearing in crops; extensive secondary changes in the skin; and itching and burning of the most distressing kind. The patient suffered greatly, the disease for a long period being most rebellious to treatment. Concerning the diagnosis, I may add that as the eruption was noted as one or another set of lesions was out, the disease might easily have been confounded with eczema, herpes or pemphigus; but, keeping the history in mind and observing the course of the process for some time, the individuality of the disease always asserted itself. It is a distinct and clearly defined disease, which, when once recognized, cannot be confounded with any of the well-known skin diseases.

HOSPITAL NOTES.

MEMORIAL HOSPITAL, ORANGE, N. J.

Service of WILLIAM PIERSON, M.D.

A TRIAL OF RECTAL ANÆSTHESIA.

(Reported by DR. J. H. BRADSHAW.)

MICHAEL F., aged 22, single, hatter. The patient, some weeks previous to the time at which the trial of this new method of producing anæsthesia was made, had suffered from a contused and lacerated wound of left middle finger. There had been no injury to the bones, and the wound implicated only the last phalanx. This injury had been treated at the hospital, it had well healed, and the patient had been discharged. He, however, returned to the hospital in a few days with the following story: Having seen the nurses irrigate his wound with a disinfectant solution of carbolic acid, (1-40), he had, in order to cleanse some dirt from the finely cicatrizing surface, bought some pure carbolic acid and had held his finger in this undiluted acid. The result was a moist gangrene extending almost to the metacarpus.

Amputation of the finger being necessary, it was decided to attempt the rectal method of producing anæsthesia, advocated a month or two since by Dr. Molière in the *Lyon Medical*.

An apparatus was extemporaneously prepared, consisting of a bottle, a rubber stopper, and two glass tubes passing through the latter. To one tube were attached

eighteen inches of rubber tubing, on the extremity of which was placed the nozzle of a Davidson syringe to be introduced into the rectum. To the projecting end of the second tube was fitted a cork, which was to be removed whenever additional ether was to be put in the bottle. It was subsequently found necessary to replace the syringe nozzle by a No. 18 hard but flexible catheter whose tip had been cut away transversely.

Patient tasted the ether, and it was perceptible in his breath within seven minutes after the introduction of the tube. Anæsthesia was complete in eighteen minutes. The amount of ether used was seven ounces. The operation itself lasted but eight minutes, after which the tube was removed and the patient speedily recovered.

Soon after beginning to give the ether the face was somewhat suffused. While under its full influence the pupils were dilated. Breathing was natural and easy, and without stertor. There was, of course, no sense of strangulation, and during the administration there were no unpleasant symptoms other than a slight fullness of the abdomen, and a somewhat warm feeling in the intestines. Patient had eaten a hearty breakfast four hours before given the ether, and during and after the operation there was no nausea or vomiting. There was no stage of excitement preceding the stage of insensibility; however, the patient was very talkative when coming to himself.

During the operation the patient answered questions in an amazingly rational manner, but when he recovered from the effects of the anæsthetic he said he had felt no pain, had suffered no disagreeable feelings, but it had seemed to him "as if he had just awakened from a pleasant dream."

The operation took place May 6th, at noon, Dr. Pierson operating, and Drs. Chandler, Wickes, Stickler, and the writer, being present. The finger was removed at the metacarpo-phalangeal joint. Two hours after recovering from the ether the patient took $\frac{3}{4}$ vj milk and one egg; respiration 28; pulse 92; temp. 98½°. Three hours after operation the patient had a large, natural movement, and passed $\frac{3}{4}$ iij urine. One hour later he began to get strangely drowsy and violent colicky pains were referred to the abdomen. Four hours and a half after giving the ether the patient began to vomit and threw up about $\frac{3}{4}$ x of the contents of stomach. One hour later had a large bloody stool and also vomited blood. Pain severe. Resp. 24; pulse 80; temp. 99¼°.

Six hours after the operation pain was "unbearable." Patient vomited everything taken into his stomach. About every hour from this time he either vomited or passed blood from the bowels. Large quantities of pure blood were thus evacuated. Patient grew very prostrate.

Twenty-four hours after the operation the following observations were made: resp. 28; pulse 126; temp. 104°. Four hours later: resp. 23; pulse 126; temp. 104¼°. One hour after this the patient's condition was indeed alarming: temp. 104¼°; pulse 160, and almost imperceptible; resp. 32; prostration excessive. Evacuations of blood continued; patient's condition remained alarmingly low during the second night, the pulse being very feeble and irregular, and the temperature remaining high. Symptoms of gastro-enteritis continued. Urine drawn off by catheter. Forty-eight

¹ Abstracts of this communication may be found in the N. Y. Med. Journ., May 17, 1884, p. 562, and in the Phila. Med. Times, May 17, 1884, p. 603.

hours after the administration of the ether the patient's condition was somewhat less alarming. But the temperature remained about 102°.

It was not until the evening of May 10th, the fourth day after the operation, that the temperature fell to the normal, and the patient began to make a slow recovery.

During this long period of danger everything was done to ameliorate the condition of the patient and to keep him alive. There were administered: enemata of ice water, of starch, of catechu, of quinine, and of opium; cold baths during the pyrexia; injections of Magendie's solution by the skin; tincture of digitalis, quinine, Dover's powder, bismuth, and lime-water by mouth to meet these indications, and milk, beef-tea, and whiskey at short intervals. Physicians or trained nurses were in constant attendance.

May 20. The patient is just strong enough to be about. The healing of the wound has been unsatisfactory.

Remarks.—This far from gratifying endeavor to give Molière's method a fair trial, it is thought wise to put on record. It is true more ether was used than is usually found necessary to employ. But this is accounted for by the fact that for the first five minutes of the administration, owing to defects in the apparatus, no ether passed into the rectum; thus the quantity of ether used and the duration of the process are both over-estimated. It is not thought probable that the injudicious use of carbolio acid by the patient influenced the result of the trial, for the patient was in good physical condition and gave no constitutional evidence of poisoning by carbolio acid.

MEDICAL PROGRESS.

NEPHRECTOMY.—At the meeting of the Glasgow Pathological and Clinical Society, on March 25th, DR. MACEWEN presented a boy from whom the right kidney had been removed about ten weeks previously, on account of suppuration of that organ, which had extended so far as to have virtually destroyed its excretory function. He had previously suffered for many months from symptoms of renal calculus. When admitted under Dr. Macewen's care he was in a semi-delirious and very exhausted condition, with flickering, feeble pulse and abnormal temperature, lividity of face and lips. On examining the small quantity of urine obtained on admission, it was seen to have a copious deposit of pus. On microscopic examination tube-casts containing pus-corpuscles were found, besides numerous crystals of phosphate of lime. There was an increased area of renal dullness on the right side, and a marked fulness in the lumbar region. He was at once operated on by lumbar incision. After removing a large quantity of fetid pus (swarming with bacteria) and shreds of sloughing cellular tissue, two renal calculi were detected in the kidney, one of which occluded the ureter and occupied the greater part of the pelvis, the other in the substance of the organ. Both were removed, but, on further examination, the whole organ was found to be filled with abscesses, leaving little or no excretory surface. It was therefore removed. After recovering from the shock of the operation, he progressed with astonishing rapidity.—*Glasgow Med. Journ.*, June, 1884.

THE PHOSPHORUS TREATMENT OF RICKETS.—DR. M. KASSOWITZ, after repeating the experiments of Wegner on rabbits and chickens, as to the influence of phosphorus on ossification and bone-formation, draws the following conclusions:

1. Large doses of phosphorus cause, in rabbits and chickens, an inflammatory process in the bones, the ossifying cartilages, the periosteum, and the medulla, which bears a striking resemblance, when in a moderate degree, to the rachitic affection; whilst, by an increase of this inflammatory process the epiphyseal cartilages are separated from the diaphyses.

2. Very small doses of phosphorus limit, in a striking manner, the breaking down of the ossifying cartilages and of the newly formed osseous plates, and cause a decrease in the number of primary medullary cavities, as well as a diminution of the later phenomena, which must necessarily lead to a checking of the development of new bloodvessels, and very probably to a contraction of their walls.

The practical results of these experiments have been tested on 560 children ranging from eight months to two years of age, and Kassowitz now believes that phosphorus is a direct, if not a specific, remedy for rickets. All the symptoms of the disease improve under the phosphorus treatment. It may be given in doses of from gr. $\frac{1}{10}$ to $\frac{1}{8}$ or $\frac{1}{4}$ according to the age of the patient. The following is a convenient formula:

R.—Phosphori, .01 part by weight, solve in olei amygdalarum dulc. ant. ol. oliv. 10.

Pulv. gummi acac.,

Syrup. simpl., aa 5.

Aqua destill., 80.

Sig.—Dose, one to four small teaspoonfuls daily.

Or, we may use 100 parts of cod-liver oil and .01 part, by weight, of phosphorus, giving one or two teaspoonfuls a day; or, oil of sweet almonds 70, phosphorus .01, powdered white sugar 20 parts by weight, ether 20 drops. One or two teaspoonfuls a day; or, oil of sweet almonds 30, phosphorus .01, powdered gum-arabic and white sugar aa 15, distilled water 40 parts by weight. Dose, one or two teaspoonfuls a day.—*Deutsche med. Wochenschrift*, April 3, 1884.

PHYSIOLOGICAL EFFECTS OF AMORPHOUS DIGITALINE.—M. KAUFMANN, Chief of the Physiological Laboratory in the Veterinary School at Lyons, draws the following conclusions at the close of an elaborate article on this subject:

1. Digitaline does not cause diuresis, either in large or small doses, when given to healthy animals. Given by hypodermatic injections, or by the stomach, in the form of powder, it diminishes the quantity of urine, and increases the quantity of urea; given by the stomach, in liquid form and in small doses, it diminishes the amount of urea and of uric acid. It produces diuresis only in dropsies arising from circulatory troubles.

2. Digitaline acts as an energetic local irritant. Its general effects are most marked when dilute solutions are injected into a vein, or placed in the trachea or stomach; subcutaneous and intramuscular injections cause a fever of reaction.

3. Digitaline, in small doses, causes slowing of the pulse, followed by an acceleration when medium and

large doses are given. The slowing of the heart is due to bulbar and intracardiac irritation of the inhibitory system, and the acceleration is due to central paralysis of this system.

4. It increases the diastolic and systolic intracardiac pressure, and therefore the mechanical work of the heart. It gives an increased energy to the cardiac contractions, and increases the wave-volume.

5. During the slowing period, the cardiac contractions are often associated two or three together. During the acceleration the heart-beats are regular.

6. With small doses the pulse becomes stronger; with large doses it is at first strong, afterwards feeble. It often becomes double or threefold.

7. Small doses slightly increase the arterial tension by central and peripheral excitation of the vaso-motors; larger doses increase it at first, but it subsequently diminishes.

8. It diminishes the rate of flow through the arteries; it reduces the rectal temperature; and diminishes the quantity of urinary secretion in a healthy animal.—*Revue de Médecine*, May, 1884.

SPONDELLOLISTHESIS.—**SWEDLIN**, after giving a detailed report of a personal observation, studies the termination of labor in all cases of spondelolisthesis known at present, and draws the following conclusions:

1. In contractions of slight degree, caused by olis-thesis, the pseudo-true conjugate being less than three and three-fifths inches, delivery is not generally difficult.

2. In medium contractions, the pseudo-true conjugate being from three to three and three-fifths inches, labor at term is not generally serious for the mother and child. Very serious intervention is rarely necessary.

3. In very pronounced contractions, the pseudo conjugate being from two and three-fifths to three inches, labor at term is very serious for the child. The prognosis for the mother is not quite so unfavorable.

4. In extreme contractions, the pseudo conjugate being less than two and three-fifths inches, the head of the fetus cannot pass without an operation.

5. For multipara, the prognosis of the expected labor is more serious as previous labors have been difficult.

As regards operative indications:

1. When the pseudo-true conjugate diameter is less than two and four-fifths inches, labor should be brought on in the thirty-second week.

2. When the pseudo-true conjugate is between two and four-fifths and three and one-fifth inches, labor should be brought on in the thirty-sixth week.

3. When the diameter is from three and one-fifth to three and three-fifths inches, the pregnancy may be allowed to go to term, unless there are no reasons for believing that it will terminate favorably, or the woman is depreciated in health by the pregnancy, in which case it is better to bring on labor in the thirty-sixth week. If the diameter is more than three and three-fifths inches, premature artificial delivery is not indicated.

4. When the pregnancy has gone on to term, one should hesitate, even with a pseudo-true conjugate of less than two and four-fifths inches, before operating on the fetus, unless the mother is endangered, and then cranioclasty should be the choice. Cæsarean section

should be the second choice. With a pseudo-true conjugate of two and two-fifths inches, the Cæsarean operation is indicated.—*Archives de Tocologie*, March, 1884.

SCLEROTINIC ACID IN EPILEPSY.—The preparations of ergot have already been used, with more or less success, in the treatment of epilepsy, but sclerotic acid was first used by MM. BOURNEVILLE and BRICON, in 1882. They now administer it either in julep or hypodermatically.

In December, 1882, four epileptic children were treated with the following solution:

R.—Sclerotic acid, . . . grs. vijs to xss.
Distilled water, . . . f3ijss.
Carbolic acid. . . . grs. xss.—M.

S. Each injection should contain from gr. $\frac{1}{2}$ to $\frac{1}{4}$.

For hypodermatic use, the dose has not been greater than gr. $\frac{1}{2}$. The duration of the treatment was six weeks for one child, which died; six and a half months for two others, and seven months for the fourth.

For internal administration, the acid is given in an aromatic adjuvant (*julep*), morning and evening. Eight epileptics have been treated in this manner, the dose of sclerotic acid progressively increasing by about gr. $\frac{1}{2}$ every week. The average duration of treatment for these eight patients was three hundred and fourteen days. Of the twelve patients treated by both methods, only five have been improved. These results are not very encouraging, but, under the circumstances, it may be worth while to experiment still further with this drug.—*Le Progrès Méd.*, May 24, 1884.

REMOVAL OF ASTRAGALUS FOR FUNGOUS OSTEO-ARTHRITIS OF THE ANKLE-JOINT.—M. ROBERT, at the close of an interesting article on this subject, draws the following conclusions:

1. Sprain of the foot is frequently followed by chronic bone lesions, which have a great tendency to be localized in the astragalus, or in the articular surfaces of the astragalus or calcaneum.

2. These lesions may be for a long while limited to the region of the tarsus, yet the simple means directed against the osteo-arthritis are often powerless—modifying injections and ignipuncture being usually efficacious. Gouging, scraping, and deep cauterization are not certain methods for reaching the seat of the disease, and sometimes cause such an aggravation that amputation becomes necessary.

3. Removal of the astragalus is an operation which facilitates exploration of the articular surfaces affected with caries, and which enables the operator easily to remove the diseased parts. When done by Vogt's method, it is easy, causes no severe injury, has only a small mortality, gives permanent cures, and, at times, excellent functional results.

4. As with all other resections, removal of the astragalus should not be performed when the subject is affected with pulmonary tuberculosis, or is very old, or when the lesions are very extensive.—*Archiv Gén. de Méd.*, May, 1884.

PRIMARY TUBERCULOSIS OF THE CONJUNCTIVA; EXPERIMENTAL INOCULATIONS IN THE ANTERIOR CHAMBER.—M. H. PARINAUD says that tubercles of the

eye do not rarely occur as a primary lesion, especially in infants. If there is general infection existing, it is not shown by any positive symptoms in the lungs or other organs. Whether they develop spontaneously in man, or are the product of experimental inoculations in animals, tubercles of the conjunctiva are especially interesting, because they can be easily recognized, and in many cases we can follow out the characteristic evolution of the granulation.

Parinaud gives a detailed account of some experimental inoculations made in 1883. He introduced, through a wound made in the cornea, into the anterior chamber of the eyes of a rabbit, the scrapings from an ulcer. In the right eye, a small fibrinous clot was enclosed in the wound. Three other rabbits, not inoculated, were placed in the same conditions of nourishment and hygiene. On the third day, there was intense ophthalmia of both eyes, characterized by hypopyon, diffuse cloudiness of the cornea, iritis, and injection of the globe. There was complete blindness. Parinaud believed the eyes lost. On the eighth day there was great amelioration of the inflammation. On the tenth day the hypopyon, which had occupied more than a third of the anterior chambers, had been in great part absorbed. The cornea of the left eye had recovered its transparency, save at the lower part and at the seat of the wound. The iris was easily examined, the pupil was dilated, and there were no adhesions. Vision seemed to be good. In the right eye the pupil was completely obstructed. On the twelfth day, there was a point of very limited vascularity running off from the pupillary border. On the twentieth day there were, at this point, two small, grayish granulations, which protruded from the border of the pupil. On the thirtieth day, new granulations appeared around the first, and became fused with them; others appeared at different points of the iris, the vascularity of which was increased.

At the seat of the inoculation-wound, there was a circumscribed yellow projection, upon which two small spots had the appearance of tubercles developing in the cornea. Lower down, at the situation of the hypopyon, where there were several whitish exudations, there was the same modification of the cornea. There was a little parenchymatous vascularity of the membrane. On the thirty-fifth day, the granulations of the iris had become yellowish, and were so fused together as to form an irregular caseous tract along the pupillary border. On the forty-fifth day, the cornea was opaque, and the iris could not be examined. The globe was vascular, and a little soft to the touch. The two corneal projections were larger, and formed two yellowish nodules. The cornea was infiltrated to the conjunctival edges. The lesions in the right eye were almost identical. The animal was completely blind, ate less, and lost strength. It was killed on the fifty-eighth day.

The autopsy showed the lungs filled with tubercles in different stages of evolution, from the grayish granulation up to tubercles as large as a small lentil, some of which were already caseous. These tubercles, very apparent to the naked eye, numbered about fifty; but under a glass, a great many transparent granulations were seen. There was no diffuse inflammation of the lung, the tissue of which, though everywhere injected with granulations, still preserved its elasticity. There

were no appreciable granulations in other organs. On examining one of the eyes, it was found that the tubercles of the iris were much less apparent than during life, when the cornea was transparent. There was a yellowish, fibrinous exudation at the lower part of the anterior chamber, adherent to the cornea and iris. The two nodules of the cornea were formed by an opaque thickening of this membrane. One, situated on the sclero-corneal limb, involved the cornea, the conjunctiva, and the thickened episcleral tissue. The inoculating material had been carefully examined by MM. Marie and Vignal, and no bacilli discovered.—*Gazette Hebdom.*, June 13, 1884.

COMPLETE RUPTURE OF THE UTERUS; BIFID UTERUS.—M. L. SECHEYRON reports an interesting case of rupture of a bifid uterus. The patient was twenty-two years of age, and had always been in good health. At her first and normal pregnancy she was easily delivered. About three years afterwards she became pregnant a second time. In the eighth month she fell, and in trying to recover herself she felt a tearing sensation in the right flank, and immediately there was intense pain at this spot. After resting for a few moments she took a walk. The pain persisted for two days, when labor came on. It was then found that the fœtus had escaped, through a rent in the uterus, into the peritoneal cavity. The operator's (M. Bar) hand was passed through the rent and the child seized and brought out through the vagina. M. Bar then washed out the peritoneal cavity with a five per cent. solution of carbolic acid.

After the operation the patient was in a state of collapse, the pulse being 125 and thready, but she soon rallied, and for several days there was some hope that she might recover; she died, however, on the twelfth day.

The autopsy showed the presence of the usual adhesions and other appearances which were to be expected under the circumstances. The uterus was found to be bilobed. The left lobe, as large as the fist, had its axis inclined to the right, and from before backwards. The right lobe was less prominent, and occupied a plane posterior to that of the left, the external border of which appeared to have undergone a slight movement of rotation to the right, and from behind forwards. The right lobe was partly caught by a vesico-rectal peritoneal loop which terminated anteriorly at the posterior vesical wall, where its fasciæ seemed to spread out under the peritoneal covering of the bladder. Posteriorly it arose from the right side of the meso-rectum, near the median line. Each uterine lobe had a round ligament and a Fallopian tube. The cervix was sufficiently dilated to admit the index finger, which passed along a canal about two inches long and then came to the orifice of the rupture, situated between the two lobes and on a level with their junction. The cervix was split up to the point of rupture, and the left lobe opened toward the median line. The rupture was at the internal and lower part of the left lobe, the right not being involved. In fact, on the right the rupture seemed to terminate at the level of the vesico-rectal band. There was only one cervix, and between the rupture and the superior limit of the cervix there was a portion common to both lobes.—*Annales de Gynéc.*, June, 1884.

THE MEDICAL NEWS.

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SATURDAY, JULY 19, 1884.

THE CHOLERA.

THE progress of cholera during the past week has been such as to warrant the belief that it will spread throughout Europe during the next thirty days, and may reach our shores at any time. Its progress can be arrested only by the most watchful care on the part of our quarantine officers—for this disease has *always reached our shores by ships*. Scrupulous cleanliness on board ship, isolation of all suspicious cases, absolute destruction of the fomites of those infected, and special care that the water supply is not contaminated (boiling it before use if there is any suspicion of its being impure), would add greatly to securing the healthfulness of ships; while municipal cleanliness persistently and systematically carried out, would leave no nidus for the disease to gain a foothold, even should it reach our shores.

Protective measures have been instituted by nearly all the transcontinental powers, and a general feeling of alarm seems to pervade the larger cities which are in the line of the pestilential march. In Marseilles, where the disease is now raging, the excitement is represented as being intense, and the Workingmen's Commission, referring to the plan of depopulating the city, which leaves the poorer classes without employment, have issued a red placard with the words: "The action of the municipality has left us nothing but suicide or a hideous death from hunger or epidemic." It is stated that over 120,000 people have fled from Marseilles within the last ten days.

Our Government has cabled its consular officers at London, Liverpool, Marseilles, Havre, Bordeaux, Bremen, and Hamburg, to immediately appoint sanitary inspectors, whose duty it shall be to thoroughly inspect all vessels, merchandise, passengers,

and crews, bound for United States ports, and to refuse clean bills of health in all cases except where such inspectors certify that the vessels are clearly entitled to them. The consuls are further directed to report by cable any vessel bound to the United States about which any suspicion of disease exists, in order that our local health officers may have timely warning of approaching danger, and be prepared to meet it.

TRAUMATIC CEPHALHYDROCELE.

IN an exhaustive paper, read before the American Surgical Association, and published in the *American Journal of the Medical Sciences* for July, Dr. P. S. CONNER has collated twenty-two cases, including two of his own, of subfascial accumulation of cerebrospinal fluid, of which nineteen were connected with and consequent upon simple fracture of the vault of the skull, and in three there had originally been a communicating wound of the scalp which had closed, two of these being cases of gunshot injury, while in the third the skull had been trephined.

The lesion has heretofore invariably occurred in young subjects, all, with one exception, in which the age was thirteen years, being three years and under, a fact which may be explained by the great elasticity of the skull in early life, permitting marked depression and fissuring of the vault without associated wound of the scalp, and by the more intimate connection of the membranes and skull in children than in youths and adults.

The diagnosis is not always easy when pulsation is absent, as it was in more than one-half of the cases, since, under these circumstances, the fluidity of the contents of the swelling and the thinness of the percussion-wave will excite the suspicion of a hæmatoma or a deep-seated abscess. The diagnosis, however, is clear when there is evident pulsation synchronous with the heart-beat; when there is increased fulness upon crying or holding the breath; when, upon pressure, a diminution in volume is readily effected, with or without resulting symptoms of cerebral irritation; and when the scalp is normal in color, and, it may be, translucent.

That the prognosis is bad is indicated by the fact that of the eighteen cases due to simple fracture, in which the result is known, nine died, and of the three in which the fracture was originally compound, one perished. In two of the fatal cases death was attributable to the treatment employed—incision and seton. Of the eleven recoveries, two exhibited a morbid mental condition.

Operative interference should be restricted to the removal by aspiration of a limited amount of fluid, but only when severe pressure symptoms have manifested themselves. In three of the recoveries an operation was not practised.

At the recent meeting of the German Surgical Association, the proceedings of which are recorded in the *Beilage zum Centralblatt für Chirurgie*, No. 23, VON WINIWARTER exhibited a boy, thirteen years of age, in whom a remote effect of the lesion under consideration, produced by permanent pressure, was well shown. When six months of age, the infant sustained a simple fissure of the right parietal bone, with the development, in a few days, of a characteristic cephalhydrocele, which was treated by compression, but which grew in proportion to the increase in the volume of the skull, until, finally, under the influence of the remedial agent, the bones were absorbed, leaving a defect, or loss of substance, five inches and a half in its long diameter, and two inches and three-eighths in its short diameter. The collection of fluid had, however, for some inexplicable reason, disappeared, and the defect was covered by normal skin; but that there still remained a loss of substance of the meninges was shown by the accumulation of fluid under the integuments when the patient was recumbent.

In the discussion which followed the reading of this paper, it may be stated that von Bergmann referred to a case reported by him at a former Congress, so that there are at present at least twenty-four examples of traumatic cephalhydrocele on record.

In his conclusions as to the treatment of this lesion Dr. Conner states that firm pressure will almost certainly produce or increase the symptoms of intracranial irritation; and the case of von Winiwarter shows that it exposes the patient to the danger of widening the original fissure, and ultimately inducing absorption of its edges, until a large defect results.

SUICIDE, AND ITS PREVENTION.

No one can read the daily papers without being struck with the present frequency of suicide. True, this is the season of the year when suicide occurs most frequently; and the recent great shrinkage in values, bringing financial ruin to thousands, has led some who, thinking themselves rich, and have not been able or willing to bear the losses which have brought them to poverty, to seek escape from this world. Both the season and financial reverses being recognized factors in the occurrence of suicide, time and active cause are favorable to this increase in the number of those who die by their own hand.

Another fact, which must be obvious to all who read these tragedies, is that in the great majority of cases those who thus die are men. They who have the more physical, and sometimes claim the greater intellectual strength, seem less able to bear up under life's ills, and, more readily, seek refuge in death. This difference in the sex of suicides is in part owing to woman's conscience being more active, and to her

religious sentiment being stronger, for it would be foolish to claim that she suffers less in mind or heart or body, than man does.

Whether cases of suicide are only apparently more frequent now than a few years ago, it is certain that more occur in one week in the United States than can be found in the history of the Hebrew people during four thousand years. This seems like a sad commentary upon a civilization which is doing much for the benefit of man, and for the improvement of society. It becomes the philanthropist and the political economist to inquire whether there are not evils which may be removed, so that life, if not rendered more desirable, may at least be made more tolerable. These countless tragedies are a protest against life, a cry of sad despair; life is not worth living, is the acted declaration of every man or woman who perishes by his or her own hand. Cannot the value and the sacredness of life be increased, so that these horrors which often carry unutterable sorrow to many hearts may be diminished? Apart from any influence exerted by a wise political economy, and a generous philanthropy, by which the value of life will be enhanced, the estimate which is set upon it is closely connected with systems of philosophy, and with religion. To discuss these topics, however, would require too much space, and might suggest controversy.

What other means may be sought to prevent this great evil? Ptolemy made short work with the teaching of the Cyrenic philosopher, Hegesias, and thus arrested an epidemic of suicide; but Ptolemy does not govern in this country, and there is no arbitrary power to decide that the works of pessimistic philosophy which makes a cosmic suicide the goal of the race, should not be published. Esquirol, and several alienists since him, have expressed the desire that newspapers should be forbidden to publish cases of suicide, because these recitals may lead some readers to kill themselves. But in this country such legislation is impossible.

The chief means of prevention lying in the hands of physicians, is the timely recognition of the danger in a given case, and immediately putting the patient where self-destruction will be impossible. Thus many a suicide could and would be prevented. One of our great professional shortcomings is in not recognizing the premonitory symptoms of these acts, the heralds of these tragedies. In too many cases the symptoms are plain and the heralds give no uncertain sound, after the event. We do not know that this evil would be avoided by the plan suggested by Dr. Holmes in his last Harvard address, nor do we know that the plan is practicable, but our own observation may be quickened by reading it: "I have often wished," says our wise teacher, "that disease could be hunted by its professional antago-

nists in couples—a doctor and a doctor's quick-witted wife making a visit and attacking the patient—I mean the patient's malady, of course, with their united capacities. For I am quite sure that there is a natural clairvoyance in a woman which would make her as much the superior of man in some particulars of diagnosis as she certainly is in distinguishing shades of color. Many a suicide would have been prevented, if the doctor's wife had visited the victim the day before it happened. She would have seen in the merchant's face his impending bankruptcy, while her stupid husband was prescribing for his dyspepsia and indorsing his note; she would recognize the love-lorn maiden by an ill-adjusted ribbon, a line in the features, a droop in the attitude, a tone in the voice, which mean nothing to him, and so the brook must be dragged to-morrow."

One fact should be present in the physician's mind: Any one who purposes self-destruction is most probably suffering from physical disease, and in every case the accomplishment of the purpose should be rendered impossible either by immediate committal to an asylum for the insane, or by his being kept every minute under a qualified guard.

While referring to the subject of suicide, we wish to call attention to some recent interesting observations of VOISIN, in which he mentions the most important signs of suicidal insanity, and localizes the affection. He states that these patients ordinarily complain of violent bregmatic and sincipital pain, and the temperature of the parts where this pain is felt is notably increased. Clinical histories and post-mortem examinations have led him to the conclusion that the ideas of suicide in the insane are connected with functional disorders and lesions seated in the most internal of the ascending frontal and parietal cerebral convolutions.

Another noteworthy point in connection with the subject of suicide, is the partiality men have for destroying their lives by firearms, and the unfortunate facility with which these implements of destruction can be procured. Women who commit suicide use a pistol rarely, only one to fourteen men, for this purpose; they will hang, drown, take poison, stifle themselves with carbonic acid, or throw themselves over a precipice, rather than put an end to their lives by a bullet.

Among the most important means to prevent suicide is work. The man who is out of employment, who has been discharged from his place, or met with such financial reverses that his business is lost, is occupied brooding over his misfortunes until they grow in size and blackness, and death seems to him better than life. Give that man work for every minute of his waking hours, and he will have no time to think about destroying his life. Better work for nothing than to be idle. Work is the law, the fountain, the guardian, the reward of life.

FEMALE PHARMACISTS.

LOUISVILLE has the honor of having opened the first school in this country for the education of women in pharmacy, and so far the institution has succeeded. The annual commencement of this college recently occurred, and a part of the exercises of the occasion was an address by Dr. Yandell, which was plain, practical, wise, and suggestive. In it he pleasantly stated that, among other reasons for women being fitted to prepare medicines, they took medicine and gave it better than men, had more faith in it, and needed or thought they needed more than men.

One important truth among those which Dr. Yandell presented to the "girl graduates," was that, entering into competition with men, they must expect just the treatment men give their fellows: "You have chosen to align yourselves with man. You have become his competitor for bread, his rival in work; look for no other treatment than he gives his fellows. The lines of commerce are merciless, and true banking knows no friends." This truth is of great importance, and we sometimes think is not fully appreciated by all those who enter this contest, whether in the professions or trades hitherto occupied exclusively by men.

Undoubtedly woman possesses qualities which peculiarly adapt her to pharmacy, and her success she alone must determine; it is well that the experiment is being tried, for the just tendency of the time is to demand more and better paid work for women.

BIDDING FOR STUDENTS.

WE have had our attention called a number of times to a practice of a Baltimore medical college, of sending out with its catalogue a circular inviting the physicians receiving it, to recommend young men for admission on certain "special privilege" terms, which are set forth in the catalogue. A few days ago the catalogue of the school was received by us in the regular way, and between its pages we found a postal card having upon it the address of the Dean, and containing the printed form above referred to, with a line left for the insertion of the name of the student so recommended. On examining the accompanying catalogue, we find that the "privileged student" is admitted for half the usual fees, which, without this reduction, are less than those of first-class medical schools.

Such unlimited bidding for students can only have the effect of degrading medical education and lowering the institution which adopts it in the eyes of the better class of the profession—the very ones whose respect it should seek to win. And we would say for the benefit of the school concerned, that all who have commented on the matter to us have done so

with a view to express decided disapprobation and contempt for the practice, of which the intent is so obvious.

• The country is overrun with half-educated doctors who are a reproach to the profession and a danger to the community, and the conditions of admission to the profession should be made more, rather than less stringent. We have already stated in these columns how this can be done without excluding the properly qualified indigent student. Opportunities for free instruction should exist, but they should be limited, and scholarships awarded only to those who pass best in a stringent competitive examination.

REVIEWS.

ATLAS OF MICRO-PHOTOGRAPHS OF PATHOLOGICAL AND ANATOMICAL PREPARATIONS. Photographed and demonstrated by DR. RUDOLPH MENDER. Quarto, pp. about 40. Plates lxvii. San Antonio, Texas, 1884.

As a collection of photographs of pathological subjects, we regret to be compelled to say that this book is a lamentable failure, since most of the genuine productions might be readily mistaken for a series of views of the planet Jupiter, with his irregularly clouded surface, as seen through the telescope, or for veritable sun-pictures, exhibiting the dark spots upon our central orb which have so long puzzled astronomers.

Yet, as photographs of pen-and-ink sketches, many evince a remarkable talent, and one which Dr. Menger should spare no pains to cultivate. Plate xli. shows in its upper half a beautiful picture of one of the planets, and in its lower semicircle an exquisite drawing of cancer of the fundus uteri. But the most remarkable of the series is Plate xix., purporting to be a photograph of adenoma of the kidney, in which, under a magnifying glass, the borders of the cells and the connective-tissue fibres exhibit—as do those of Plate xli.—the same notches and occasionally retouched outlines which characterize the marginal reference letters and their accompanying braces.

To the working microscopist this work is almost as great a curiosity as the book entitled *English as She is Spoke* is to a philosophical linguist; so that we venture to predict for the volume an eager, though perhaps limited demand.

SOCIETY PROCEEDINGS.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, June 18, 1884.

THE PRESIDENT, WM. M. WELCH, M.D., IN THE CHAIR.

DR. JOHN S. MILLER presented a paper entitled

ETHERIZATION BY THE RECTUM; REPORT OF FOUR CASES BY YVERSEN'S METHOD.

He said, I desire to report four cases of etherization by the rectum, a method of producing anæsthesia first suggested by Dr. Axel Yversen, of Copenhagen.

These cases were in my recent practice; and to Drs. Louis Jurist and A. B. Hirsh, I am indebted for assist-

ance rendered, and for many of the observations made. In two of these cases the mucous membrane of the bowel was prepared for its respiratory function, as it ought to have been in all, by a restriction of diet and the use of purgatives. No preliminary hypodermics were used. The method of administering the ether was simple. A definite quantity was placed in a bottle (only partially filling it), was vaporized by a water-bath at 120°, and the vapor conducted to the rectum by a rubber tube, terminating in a recurrent catheter, the free or recurrent end being closed by pressure of the thumb during the inflation of the bowel; the expiratory act was performed by removing this pressure, and removing the water-bath.

The first case was one for minor operation, demanding only primary anæsthesia. This patient had not been prepared, and sufficient precaution was not taken against the introduction of ether vapor in too great a quantity, and of liquid ether, by an overboiling in the apparatus. Almost immediately he complained of burning and tenesmus, the abdomen became promptly and greatly distended, and there were colicky pains. In about one minute he noted the taste of ether. A portion of the vapor was allowed to escape, and no more was given. The pain ceased, intoxication soon began, and in six minutes he was sufficiently anæsthetized for operation. The pulse was full, and respiration was easy. Two minutes later he returned to consciousness, but seemed dazed. The struggling had been trifling. There was no vomiting, and no diarrhoea followed. One ounce of ether was used.

The second patient was an adult male, from whom I removed an exostosis of the vomer—an operation requiring full anæsthesia. In this case a sufficient laxative had been given the previous night. Two hours before the operation he had been allowed an ordinary breakfast. This patient, too, experienced a prompt burning and discomfort in the rectum, but at no time great, and soon ceasing. Ether was tasted in about two minutes, and noted on the breath. The abdomen seemed distended and some cramp-like pains were experienced. A considerable amount of vapor was then allowed to escape—with instant relief. After waiting two minutes without the development of further phenomena, a somewhat less amount of vapor was introduced, and (the catheter being withdrawn) was left for gradual absorption. The stage of excitement was short, marked by a pleasant delirium, and without motor activity. Full anæsthesia was obtained in eleven minutes from the first introduction of the ether vapor, and was perfectly maintained during the eight minutes of operation. Escape of the residual vapor was secured by a gentle kneading of the abdomen, and separation of the nates. The posterior nares not having been plugged, considerable blood regurgitated from the stomach after operation. This vomiting cannot, with any certainty, be attributed to the ether. No diarrhoea followed. An ounce and a half of the anæsthetic was used.

The third patient, also an adult, robust male, was subjected to acupressure of the internal saphenous vein, with destruction by means of Vienna paste of several neighboring vessels—an operation also requiring full anæsthesia. He had received a laxative the day before, and an enema on the morning of operation, and had taken a moderate breakfast. The sensation of warmth

and tenesmus was immediate, but soon ceased. The abdomen became distended, and he complained of epigastric pain. A partial escape of vapor was permitted, and he had instant relief. A few minutes later the bowel was again inflated, and the tube withdrawn. Enough vapor remained after withdrawing the tube to produce complete anæsthesia in a total of fifteen minutes, and no further introduction was required to maintain it. There had been almost no stage of excitation, and no other phenomena than an immoderate laughing. He recovered promptly. No vomiting or diarrhœa followed. A little less than two ounces of ether were used.

The fourth case was that of a medical gentleman in good health, whose love of science led him to volunteer a passive part in these experiments. This time the bowel had not been prepared, although an ordinary movement had taken place five hours previously. On introducing the vapor, there were slight burning and tenesmus, but no cramps. Intoxication was soon induced, and the doctor seemed most of all to enjoy the proceedings. Pulse and respiration were normal. A lively peristalsis now put an end to this mode of administration, and terminated the experiment.

The only reason for quoting this case is the evidence it furnishes for the necessity of preparing the bowel—a necessity which excludes this method of etherization from our resources in accident and emergency cases.

This case completes the four, and I have had no other opportunities for observation.

Some question having arisen as to whether the vapor really does pass the ileo-cæcal valve, I deemed this a subject for legitimate vivisection, and, etherizing a cat per rectum, opened the abdominal cavity, and noted that the small intestine was as greatly distended as the large.

In this method of etherization, the most obvious advantages are as follows:

1. Dyspnœa is avoided, and the patient is saved from the anxiety due to a sense of impending suffocation.

2. There is avoided the danger of simultaneous irritation of the superior laryngeal and pneumogastric nerves at the periphery—these irritations neutralizing each other in the respiratory centre, and suspending respiration entirely.

3. The danger of asphyxia is lessened—the patient not being drowned in his own mucus, and the integrity of the pulmonary mucus membrane as an organ of gas exchange is preserved. Of course, some vapor finds itself in the lungs, and acts there as a local irritant—elimination being by that channel. But the quantity is not great, and does not constitute a source of danger. In the cases reported, the increase in secretion was too trifling for discovery.

4. The stage of excitation is therefore not prolonged by the struggles for breath. In general, it may be said that the delirium of any alcoholic intoxication is a pleasant and good-natured one, unless the patient is crossed—as he certainly feels himself to be when a wet towel is pressed over his face.

5. Nourishment may be taken before operation to sustain the powers of life, and lessen the dangers from shock.

6. Return to consciousness is prompt—this stage not being prolonged by carbonic acid poisoning.

7. The anæsthetic seems as readily suspended as by the ordinary method—the bowel being promptly emptied by gentle massage.

8. Economy in ether is an advantage hardly to be mentioned with more important considerations.

The more obvious disadvantages are:

1. The exposure of person required—the abdomen being necessarily under observation, even if the catheter be inserted under cover.

2. More judgment and experience are required in the administration, than by the ordinary method—over-boiling in the apparatus, and too much distention, being both painful and highly dangerous. The warning to cease is sudden, and must be immediately obeyed.

3. Just as the other mode is inconvenient in oral surgery, so in perineal operations is the apparatus needed for this method, in the way.

4. In abdominal surgery, or if there be marked intestinal lesion, this mode is contra-indicated.

5. The inapplicability in cases of accident and emergency, when time cannot be allowed to prepare the bowel, has already been mentioned.

6. Diarrhœa has been noted in seven out of the thirty-seven cases on record, though in none of mine.

I believe this sequel is due to preëxisting intestinal lesion, to the lack of preparation, to a too great distention of the bowel, or to the accidental introduction of ether in liquid form. Furthermore, my method has differed from that of other experimenters in this respect, that instead of allowing the vapor to remain indefinitely, I secured a constant change by using a recurrent catheter, and introducing a certain quantity, or permitting it to escape, as indicated.

Other points of advantage and disadvantage may occur in later experience, and to other observers, and new dangers may be discovered. But I am convinced that this method is worthy of further trial, and will find its place in surgery, fulfilling its own, though not *all*, indications. Like all else in therapeutics, it must pass through the stages of bungling use, condemnation, and revival.



Dr. Miller then exhibited a form of apparatus which he had had made by Charles Lentz & Sons, No. 27 South Tenth Street, for this purpose. It consists simply of a water-bath, a graduated bottle provided with a funnel and valve for pouring in the ether, and a supply-pipe

for conducting the vapor to the rectum. This tube terminated in a straight recurrent catheter, the exhaust-channel of which is controlled by a valve. The catheter is furthermore provided with a movable collar for pressure against the anus—it having been found that the vapor tends to escape by the side of the tube.

THE NEW YORK ACADEMY OF MEDICINE.

SECTION OF OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

Stated Meeting, April 24, 1884.

ALEXANDER S. HUNTER, M.D., IN THE CHAIR.

DR. A. JACOBI read a paper on

THE MEDICINAL TREATMENT OF MEMBRANOUS CROUP.

He commenced by saying that in 1868 he formulated the indications for tracheotomy in croup in the following words: "There ought to be no contraindication when the prominent symptom is dyspnoea and suffocation. I cannot imagine any complication of croup that would prevent me from opening the trachea when the child is dying of suffocation. This is so plain to my understanding that I should consider it more a cruelty to refuse tracheotomy when I know beforehand that the child was surely going to die. Whoever has seen children die of croup, fully conscious, gasping, raving for air until they are slowly strangled in your arms, under your eyes, will at least bless a proceeding, the consequence of which will in most cases be an easier death. Nor do I acknowledge that tender age, the age under two years, ought to be held as a contraindication to the performance of the operation." Such were the principles, he said, on which the operation of tracheotomy was based, and he would as soon think of refusing to cut down a man who was hanging by a rope about his neck, even though he might be the subject of tuberculosis or carcinoma, as of refusing to perform it in any case in which the indications mentioned were present. Monté had collected 12,736 cases of croup with general diphtheria, in which no less than 3409 were saved by tracheotomy.

At the time that he read his paper on the pathology and treatment of croup before the Medical Society of the County of New York, in 1868, he was accused of cutting altogether too many throats; as up to that time tracheotomy was comparatively rarely resorted to, in New York, except by Drs. Roth, Voss, and Krackowizer. The latter up to that time had operated in fifty-six cases, all of which, with one exception, were in the city. Since then, however, the drift of medical opinion had gradually changed. The extent of this change had been very great, and at the recent discussion of the operation in the Section he had been gratified to see that eminent physicians who had been especially identified with the medical treatment of croup had advocated it so freely. Every practitioner of medicine, he thought, ought to be prepared to perform the operation at any moment, and he believed that there were now hundreds of medical men in New York who were ready and anxious to do it whenever an opportunity presented itself. For himself, he had now performed tracheotomy four

hundred times or more, while he had witnessed it in several hundred other cases.

When such, therefore, were his sentiments in regard to tracheotomy, and when such had been his experience with it, he would not be accused, in preparing the present paper, of advocating medicinal treatment to the exclusion of operative interference. Dr. Jacobi then gave a sketch of two cases of croup, in one of which the child was a little over, and in the other a little less than, two years old, which had been under his care at the Mount Sinai Hospital. The patients were placed under a tent, the temperature of which was kept at 70°, and which was constantly filled with steam and the vapor of turpentine. Neither of the cases was of great severity, and neither was of septic character, and they were treated with one-thirtieth grain doses of pilocarpine muriate, in accordance with the method of Guttemann. In regard to the efficiency of this drug, he had not modified the opinion which he had expressed at the meeting of the American Medical Association in 1881. This remedy had been recommended as a specific, but the real efficacy of such new agents was to be tried, not in moderate cases, which would probably recover without any treatment, but in severe ones, and for that reason he had first used pilocarpine in severe cases—in cases of nasal diphtheria and in the septic form of pharyngeal and laryngeal diphtheria, with or without glandular swelling. In not a single instance had he seen the slightest favorable effect; but, on the contrary, he felt sure, from two or three observations, that the fatal termination was certainly accelerated by the influence of the remedy. So far as we know, pilocarpine, either directly or indirectly (by producing vomiting), debilitated the heart's action, and when the pulse was frequent and small, the action of the heart feeble, and the tendency to collapse prevalent, as in many cases of serious diphtheritic affection, the agent could do no good whatever. Of the cases referred to at the Mount Sinai Hospital, one recovered under the treatment mentioned, and in the other the pilocarpine had to be withdrawn in two days, on account of its severe effects, notwithstanding the fact that alcohol was administered freely to counteract its debilitating influence. This child's final recovery seemed to be due, in the first place, to the macerating effect of the pilocarpine upon the pseudo-membranes, and, secondly, to the timely withdrawal of the remedy. Another child, three years of age, recovered with a fair amount of strength after taking pilocarpine for four days. In Dr. Jacobi's opinion, it was a powerful remedy, useful under certain conditions, but one the depressing effects of which it was necessary to watch with great care and counteract.

In numerous cases he had employed steam inhalations. In regard to the efficacy of this means of treatment, he had not changed the views that he had expressed in his treatise on diphtheria, published in 1880. It is true that pseudo-membranes, like everything else, became softened by the warm vapors. It was also probable that steam increased the secretion of the mucous glands, and thereby possibly loosened the overlying membranes, and favored their removal; but it was not to be forgotten that it also softened the healthy tissues, and that this change in character enabled the poison, whatever its nature, to penetrate more deeply into them. The results from the inhalation of

steam in diphtheria of the larynx had not always been pleasant. He had repeatedly had the joy of seeing children with croup become less cyanotic after their removal from an atmosphere of vapor, and he could readily see that pure atmospheric air might be more agreeable and wholesome to a child with stenosis of the larynx than an atmosphere laden with steam. Steam for the purpose of softening the tissues, and of provoking the secretion of mucus and suppuration, had been used to a very considerable extent, both in this country and in England; and he had seen cases of fibrous bronchitis getting well, when he had every reason to attribute the recovery to the persistent use of this agent. In one case, he had shut up a baby in a small bathroom with one window, and let the hot water run continuously for days, so as to produce a constant fog, and make every person in it dripping. The result was highly gratifying, as the baby got well; and so did another, whom he had the good fortune to benefit by his experience in that case. Individualizing was a great art, but in regard to steam therapeutics it was not so difficult. The object of the steam was to soften, but principally to increase the secretion from the mucous membrane, and thereby throw off the superjacent membrane. This could be done to advantage only when there was a natural tendency to it, and that was where there were a great many muciparous follicles under a cylindrical or fimbriated epithelium. This was the condition in part of the pharynx, but not in the tonsils, in a small portion of the larynx, in the trachea and bronchi, but not in the vocal cords. Wherever there was pavement epithelium on the normal surface, and where the membrane was embedded into the tissue, steam could hardly be expected to do good. In the other cases it would. Thus, the locality of the diphtheritic process determined to a great extent whether steam was indicated or not. If it were used, however, the necessity of a full supply of atmospheric air was not to be disregarded. Steam with an overheated room, and without pure air, was liable to be as injurious as steam in pure air was beneficial in a number of cases. The object for which steam was inhaled was to soften and remove membranes. When that could be accomplished without reducing the required amount of oxygen, all was well; but when respiration was annoyed or interfered with, the contraindication to steam was as clear as the indication in more favorable cases.

Turpentine had of late years been highly recommended in croup and diphtheria, and he could only repeat his former assertions in regard to its employment. For years he had been in the habit of using turpentine, either the oil or the rectified spirits, as an inhalation in bad cases of pneumonia, in which hepatization was very extensive, and expectoration and resolution did not commence, with very good result in children and adults, and the method he had employed was equally applicable in croup. The vapors of turpentine were so volatile and penetrating that the usual method of inhaling from an apparatus appeared to him superfluous; so that he allowed the patient to remain in bed, while water was kept boiling constantly on the stove or over an alcohol lamp or gas-jet. A tablespoonful, more or less, of rectified spirits or oil of turpentine, was poured on the water, care being taken that none of it was spilled in the fire; and thus the room was constantly filled with a

penetrating odor of turpentine, which was not at all disagreeable, even when in great concentration. The effects were very satisfactory. When circumstances allowed or required it, he was in the habit of raising a tent over the bed, large enough not to give inconvenience to the patient, and to admit either the whole apparatus or the tube containing the mixed vapor of water and turpentine. This plan he followed in a case of laryngeal diphtheria in a little girl, two years old, in the children's service of the Mount Sinai Hospital. The baby was in a room of her own, with a nurse, and a tent was raised over the bed. Four days and nights she was exposed to the water and turpentine treatment, awake or asleep; and the presence of the nurse under the tent with her was insisted upon by the patient whenever she was awake. The case was not allowed to become, or, at all events was not a very serious one, but was serious enough to be diagnosticable, to produce hoarseness, aphonia, and dyspnoea, and to render the perception of pulmonary murmurs impossible, though there never was cyanosis, with the exception of a slight hue on the upper lip.

Dr. Jacobi then said that he would now select one topic for discussion which seemed to him of considerable importance, but was not a new one, and that was the use of mercury; after which he proceeded to give an exhaustive *résumé* of the opinions of various authors, for and against, up to the present day. He first mentioned Dr. Samuel Bard, who, in 1771, recommended the administration of from three to five grains of calomel a day, and then Dr. Rush, who also advocated its use in his *Medical Inquiries*. Among the others to whom he referred were the following: Bretonneau used mercury not only internally, but by inunction in the form of the ointment, and with good effect. Guersant favored it, but Trousseau was wholly opposed to its employment, and on account of the weight of his authority it sank into almost entire disuse for a considerable time in France. After alluding to a number of German and English writers, who for the most part favored its use, he quoted from Dr. George B. Wood, of Philadelphia (*Practice of Medicine*), 1847, Bourgeois, 1850, Barum, 1861, and Bartles, 1867. The latter reported forty-one cases of croup, five of which recovered under the use of mercurial inunction. After long experience with the drug, however, he discarded it. Oppolzer used calomel and iodide of potassium; Senator, calomel and antimony; and Rauchfuss, calomel with oxysulphuret of antimony, the ointment, and hypodermatic injections of the corrosive sublimate. Dr. Jacobi then alluded to the views which he himself had expressed in his work on diphtheria, in which he stated that in regard to the action of mercurial remedies he was no longer so sceptical as he had been a quarter of a century before, and admitted that the experience of many subsequent years had changed his opinion to a certain extent. He quoted as follows: "I also know that when the constitutional effect of mercury could be obtained speedily, cases of fibrinous tracheo-bronchitis got well in an unexpected manner. To accomplish that, it is necessary to give small doses very frequently. Calomel, grs. viij to xij, divided into thirty or forty doses, of which one is taken every half hour, is apt to yield a constitutional effect very soon. Such doses, with minute doses— $\frac{1}{60}$ th grain or more—of tartar emetic, or ten or twenty times

that amount of oxysulphuret of antimony, have served me well in fibrinous tracheo-bronchitis. But the mucous membrane of the trachea and bronchi is more apt to submit to such liquefying and macerating treatment than the vocal cords. The latter have no muciparous glands like the former, in which they are very copious. And while the tracheal membrane is apt to be thrown out of a tracheal incision at once, though of more recent date, the pseudo-membrane of the vocal cords takes from six days to sixteen or more for complete removal." He next went on to say that if ever mercury was expected to do any good in these cases of suffocation by membrane, it had to be made to act promptly. That is what the blue ointment did not do. In its place he recommended the oleate, of which ten or twelve drops might be rubbed into the skin, along the inside of the forearms or thighs, every hour or two hours. In place of, or in addition to this, repeated doses might be given, as recommended above, or hypodermatic injections of corrosive sublimate in a one-half or one per cent. solution of distilled water, four or five drops, from four to six times a day. Dr. Horatio C. Wood, in his *Therapeutics*, said that calomel was useful in severe laryngitis, and especially in the pseudo-membranous variety, when the type was sthenic; and no time should be lost in bringing the system under its influence. In whatever disease a mercurial was administered as an antiphlogistic, it should be given during the stage of exudation, and to facilitate the absorption of the newly organized lymph after it had ceased to be thrown out. In the majority of cases, mercury given for its constitutional effects should be combined with opium, to prevent its acting on the bowels. Calomel should not be used in adynamic inflammations, or where the exudation was serous rather than fibrous. In Reynolds's *System of Medicine*, J. Lewis Smith, in his work on diseases of children, said that calomel, which had been largely prescribed in times gone by for its supposed "antiplastic" action, had been properly laid aside, and Roberts Bartholow, in his *Therapeutics*, expressed himself as very sceptical in regard to the utility of the remedy.

Erichson, of St. Petersburg, was the first to recommend the cyanide of mercury, and he used it in patients from seven weeks to thirty years old; one-hundredth of a grain every hour being given to young children. In twenty-five cases of croup it was successful in all but three, in which the fatal result was due to complicating causes. In all, the diphtheritic process became extinct. Another writer reported only three deaths out of ninety-eight cases treated by the cyanide, but stated that the remedy had no effect if the larynx was already affected with stenosis. Schultz had used mercury hypodermatically with success, and employed the cyanide principally. Meigs and Pepper (*Diseases of Children*, sixth edition, pp. 100 and 101) said: "Calomel is the preparation almost always preferred, and many authors still recommend the administration of this remedy, in larger or smaller doses, in the earliest stage of the attack. During late years our increased dislike of the administration of mercury to children in large and frequently repeated doses, and the constant observation that even its free use does not appear to arrest the cause of true croup, or prevent the formation of membranous exuda-

tion, have led us to abandon entirely its employment in this disease."

It was evident, from the various authorities that had been quoted, Dr. Jacobi continued, that the difference of opinion in regard to the value of mercurials was very great; but one fact was noticeable, viz.: that, as a rule, the text-books, which were based on acknowledged facts only, were more or less unfavorable in their judgments, while the writers who spoke from their own personal experience generally appeared as the friends of the mercurial treatment. His own opinion, of 1880, had been somewhat still further modified in favor of mercury, especially the bichloride, and he had been particularly impressed with the statements made by Dr. William Pepper in his Address in Medicine at the meeting of the American Medical Association in 1881. In the course of this he said: "But I cannot omit a passing reference to the remarkable results that have recently been observed to follow the use of large doses of bichloride of mercury in diphtheria. The original paper that brought this subject to my notice was by Dr. G. A. Linn, of Washington County, and was published in the *Transactions of the Medical Society of Pennsylvania*. The extraordinary statements there made have been confirmed by the experiences, as yet unpublished, of several competent observers." Having then related a case which he saw in consultation with Dr. T. J. Yarrow, of Philadelphia, in which a child, five years old, apparently in *articulo mortis* from diphtheritic croup, was saved by doses of one-thirty-second of a grain of bichloride of mercury, given every second hour in solution in elixir of bismuth and pepsin, with two drops of tincture of nux vomica, he concluded his remarks on this subject as follows: "The extraordinary tolerance of such large doses of bichloride of mercury, and the rapid and progressive improvement from so desperate a state, make me regard this as one of the most remarkable cases I have ever witnessed, and will certainly induce me to give further trial to this remedy, given in the same manner, in cases of grave diphtheritic infection."

Dr. Jacobi then went on to say that, while he had of late met with a gratifying measure of success in the use of the mercurial treatment, he was not one of those who "had never lost a case." As to the preparations of mercury to be used, he thought it was best to use a very few, and to give them them a thorough trial, and none of them apparently offered the advantages of the bichloride. It was best to give it largely diluted, say about one part to three thousand of water (one grain to the quart), and, as an albuminate or a peptonate would be formed, gastric and intestinal disturbances would be avoided. Having spoken of the extraordinary power of the bichloride as a germicide, mentioning in figures, as determined by actual experiments, its great superiority to phenic acid, thymol, salicylate of sodium, carbolic acid, quinine, and other antiseptics, he referred to a paper on "The Treatment of Diphtheria and Croup by Large Doses of Bichloride of Mercury," recently read by Dr. William M. Thallon, of Brooklyn, before the Kings County Medical Society, and published in the *New York Medical Journal*, for April 12 and 19, 1884. In this, he reported ten successful cases, and in his remarks upon them said that it was very difficult, indeed, impossible, to draw a positive therapeutic con-

clusion from treatment used in sporadic cases only, and he, therefore, acknowledged that the value of the bichloride of mercury treatment would not be established until it had proved efficient to cope with a severe epidemic of diphtheria. Still, enough had been shown, he thought, to warrant the claim that this mode of treatment was well worthy of a more extended trial; and the hopelessness and confusion of all other methods are such as to make us eagerly resort to one which was so plausible as this, and one that already had so much clinical evidence in its favor. If the bichloride were used hypodermatically, Dr. Jacobi advised that chloride of sodium should be added to the solution injected.

After tracheotomy had been performed, care should be taken that the temperature of the room should not be too high—not much over 70°—and that the air should be kept moist; this could readily be done by means of an ordinary kettle, to the spout of which a tin cylinder was attached, so that the steam should not escape up the chimney. Gas-stoves were very injurious, however, and were never to be used for heating the water. If it were deemed advisable, the child could be placed under a tent, and steam, charged with the vapor of turpentine, as previously referred to, introduced by means of a tube. As before, however, it was of primary importance that oxygen should not be excluded. In a child suffering from descending diphtheria, who was in convulsions from poisoning by carbonic acid gas, he had been enabled to check the convulsions by the introduction of oxygen through the tube in the trachea. Moderate feeding and the use of stimulants were to be resorted to soon after the operation. As to the employment of internal treatment, whatever remedy the child had been taking before was still to be continued—no change being advised unless a change in the symptoms occurred. Broncho-pneumonia not infrequently set in within a few hours after tracheotomy. Where this complication ensued quinine by hypodermatic injection was advised, and the best preparation for the purpose was the carbimide. Salicylate of sodium and sulphate of strychnia (one-twenty-fifth of a grain every two hours till four or five doses had been taken) were also useful, and small doses of digitalis, promptly given, were recommended where the heart required it. Every case must be treated according to its special circumstances. Alcohol would undoubtedly be needed, and camphor might be of service. In cases of urgency, when collapse seemed imminent, Siberian milk was advised. In short, the disease was not to be treated in a routine way because of its name, but in accordance with the actual indications present in the special case presenting itself.

Dr. Jacobi stated his conclusions as follows:

1. The mercurial treatment of membranous croup was promising of good results.
2. The bichloride appeared to be the best preparation for this purpose.
3. The remedy should be given early and frequently repeated.
4. The bichloride should be well diluted (about 1 to 3000).
5. To babies about half a grain should be given in the twenty-four hours, and, as a rule, its administration could be kept up for many days, if necessary, without bad effects.
6. Stomatitis or salivation is very rarely observed,

and gastro-intestinal disturbances are not frequent under its use.

7. If any unpleasant consequences result from the bichloride, inunction by the oleate of mercury is advised in its place.

8. If the treatment of the diphtheritic disease be undertaken in time croup may often be prevented, as this is believed to be due to descending pharyngeal diphtheria.

At the conclusion of his paper, Dr. Jacobi referred to three cases which he said he had selected out of a large number of others as samples to show the efficacy of the bichloride treatment. The first was that of a child two years of age, whom he had seen in consultation with Dr. E. J. Hogan. It commenced as a mild pharyngeal inflammation. In the evening the medical attendant left the patient in excellent condition, but was summoned at 3 A.M. to find that alarming dyspnoea had suddenly set in. Turpeth mineral was promptly given, and this produced partial relief, but also gave rise to profuse diarrhoea, which lasted for twenty-four hours. The next day the child was found to be steadily growing worse. The pulse was from 150 to 160, and the respirations from 50 to 66 to the minute, while there was epigastric and supra-sternal recession. Carbonate of ammonia was now given, but the condition of the child becoming more and more alarming, tracheotomy was advised and performed. No membrane had been detected in the throat or nose, but its presence was now revealed in the trachea. The wound was treated with a solution of bichloride of mercury (1 to 2000) and iodoform, while Dover's powder was given internally. After a time the patient began to suffer again from increasing obstruction, and Dr. Jacobi was called in consultation. By his advice one-thirty-second of a grain of bichloride of mercury was given every hour, and from this time on the recovery commenced. The remedy was discontinued on the third day, on account of the gastro-intestinal irritation which it occasioned. In this case the bichloride was commenced when the rapid formation of thick membranes was going on, and when there was every indication of approaching death; and Dr. Hogan remarked that his experience in it had been such that in any similar case he should feel that it would be a neglect of the patient to withhold this remedy.

The second case was one of croup, in a child of twenty-one months, occurring in the course of pharyngeal diphtheria. One-twentieth of a grain of bichloride of mercury was ordered every hour for three days, and the child recovered. The third case was seen by Dr. Jacobi in consultation with Dr. T. Herring Burchard, who read the notes of it. An infant five months old suffered from a very bad attack of fibrous laryngo-tracheo-bronchitis, and for a number of days in succession it was given one-fiftieth of a grain of bichloride of mercury every hour. At one time the child became markedly cyanosed, on account of the accumulation of mucus in the throat, and was supposed to be dying; but by placing it in an inverted position the mucus was dislodged. Towards the close of the attack inunction by the oleate of mercury was substituted for the bichloride for a time. A good recovery was made. When Dr. Burchard had finished the history of his case, Dr. Jacobi made a few final remarks, in the course of which he stated that in

the last fourteen years he had never had so many recoveries in croup, either before or after the operation of tracheotomy, as during the last year, when he had extensively used the bichloride of mercury.

DR. W. E. FOREST stated that two years ago he treated a case of croup, in a child seven years of age, which continued to grow worse until the end of four days, when there was complete aphonia, and Dr. Jacobi was called in. He advised one-twentieth of a grain of bichloride of mercury every hour; but three doses of the medicine brought on such violent tenesmus that the dose was reduced to one-fiftieth of a grain, after which there was no further trouble of this kind, and the child made a good recovery from the attack. Since that time he had used the bichloride extensively, and a very large number of his cases had recovered. It was certainly a fact that in his treatment of croup when the trouble was not so much of the diphtheritic variety as of an inflammatory type (not commencing first in the pharynx), the bichloride (in doses of one-fiftieth grain) had acted surprisingly well. In addition, he was in the habit of using inhalations of steam from Codman and Shurtleff's atomizer, in preference to charging the air of the whole room with vapor. He kept the temperature at about 70°, and took care that the patient should have plenty of fresh air. Into the hot water in the atomizer he had a teaspoonful of "Listerine" poured, as a disinfectant; but he could not say positively whether this was really of service or not. In one case that he saw in consultation, the child was evidently suffering in consequence of the temperature of the room, which was so high that it was perspiring profusely, while its pulse was 180. In about two hours after the air had been rendered properly cool, however, the pulse came down to 110, and the child was much more comfortable in every way. This case also recovered under the use of bichloride of mercury.

DR. JOHN C. PETERS said that since the year 1845 he had seen every variety of treatment practised in so-called membranous croup, which was a disease for which so many remedies had been suggested that every one was entitled to his own views on the subject. In his own practice he had used antimony, iodide of potassium, iodine, and various other agents. For many years, however, he had treated almost all his cases of diphtheria with chlorate of potassium, crystals of the salt being placed dry upon the tongue. In his views of the pathology of this disease, as of many others besides diphtheria, he was a strict localist, believing that the trouble began in the throat and that from this absorption took place, and the general system became infected. Among the other drugs that he had used, also dry upon the tongue, were gallic acid, tannin, and alum. These astringents were not mixed with sugar or anything else, and he was sure that he had seen bad cases recover under their use in this way, as also under the effect of pepsin given in the same manner every half hour. The only adjunct that he employed was simple syringing with warm water to which salt, chlorate of potassium, or lime-water had been added. He had known one case to be treated successfully by a Cuban negress with a drug from Jamaica known as didividy, which seemed to be a bean in a pod something like the locust. It was used in infusion made with vinegar, and its medicinal properties were undoubtedly those of a simple astringent.

Many years ago Trousseau and Bretonneau were appointed to investigate an outbreak of what was presumably diphtheria in a small district in France. The mortality was so great that sixty out of a population of six hundred perished; and they found, to their surprise, that the only one who had any success in the treatment of the disease was a female hog-doctor, who had a secret remedy for what she called "white sore throat" among pigs. This proved, on investigation, to be nothing more than a solution of alum in vinegar, and, on account of the good results obtained by it, alum came into general use. For his own part, Dr. Peters said, he had gradually arrived at the opinion that diphtheria was curable by more than one remedy. He had not as yet tried the bichloride of mercury, but he should be apt to use calomel dry upon the tongue.

DR. J. LEWIS SMITH remarked that the Seniors present would, no doubt, recall when calomel was in common use in the treatment of membranous croup. Before diphtheria appeared in this city in 1858, quite a notable case occurred at the Astor House. This was one of croup in which a number of eminent medical men pronounced that it was impossible that the child could live. As the case was so hopeless, a physician from the same place as the family of the latter, gave it, as a last resort, a dose of twenty grains of calomel dry upon the tongue, and from that time it began to improve. A prominent practitioner in New York still believed in the power of large doses of calomel, if given at the outset of the disease, to moderate its severity. He was sceptical himself about this, but he could not see that there would be any great objection to trying one large dose of calomel in the possible hope of its thus modifying the course of the attack; though he certainly should be unwilling to continue the use of the drug afterward. When diphtheria appeared here in 1858 the profession were disappointed in the effect of calomel, which was found only to add to the prostration incident to the disease, and the use of mercurials gradually became abandoned in New York, except by a very few.

Recently, however, there had been a revival of the mercurial treatment, and now the special preparation recommended was the bichloride. Dr. Smith then said that he had very carefully read the paper of Dr. Thallon, to which allusion had been made, and that he must say that he had failed to become convinced by the views expressed in it. The bichloride of mercury was recommended on account of its supposed germicide effect, and he was aware of the fact that it was the most powerful of the agents of this kind yet discovered; but he was very much in doubt whether it was entirely safe to believe that the bichloride actually had a germicide effect on the diphtheritic poison in the system. It was the theory that these antiseptic agents when introduced into the blood would destroy the disease-germs existing and developing there; but he was of the opinion that if they are brought into the blood in such strength as to accomplish this they would have a very destructive effect upon the economy, since these minute organisms were found to be as tenacious of life as the corpuscles of the blood themselves, and the normal cells would be destroyed at the same time.

All who were present at the last meeting, Dr. Smith continued, must have been delighted at the admirable

manner in which Dr. Wm. H. Welch described the anatomical characteristics of the exudations met with in membranous laryngitis. Whenever there was pseudo-membrane there was found the exudation from the blood (the fibrin), and, in addition, the altered epithelial cells, as held by Rindfleisch and all the other best authorities. Now fibrin was freely dissolved by alkalies, and in the experiments in which he had taken part at the New York Foundling Asylum, it was demonstrated that a two per cent. solution of liquor potassæ would dissolve it.

The next point to which he alluded was in regard to the epithelial cells, and here there was a difference of opinion as to whether alkalies would dissolve the epithelial element of the pseudo-membranes or not. By some writers this portion of the membrane was considered analogous to *mucine*, and *mucine* could readily be shown to be dissolved by a weak alkaline solution. On the whole, he believed that he must still adhere to his opinion that the inhalation of medicated steam formed a very important part of the treatment of this disease; and the solvent which he preferred, as he had mentioned at one of the recent meetings of the Section, was a two per cent. solution of liquor potassæ in lime-water containing an excess of lime, which rendered it more turbid than ordinary lime-water.

In regard to the cases reported by Dr. Thallon in his paper, they were not altogether convincing as to the preëminent efficiency of bichloride of mercury. Thus, in one of them, in addition to the internal medication, inhalation of chloride of ammonium was used, and as this agent was an alkali, it seemed probable that it had some effect in producing the favorable result noticed. Again, Dr. Thallon regarded as cases of croup those in which there was simple huskiness, without dyspnoea; but if he (Dr. Smith) were to do the same, he would be apt to report that fully one-half of his cases of croup recovered under the use of inhalations of a two per cent. solution of liquor potassæ with lime-water. If huskiness came on, he believed it was demanded, as a matter of safety, that such inhalations should be resorted to for the purpose of preventing further advance of the disease, for if there was only a slight deposit of membrane, it would probably be dissolved away at once. Mucopus of a tough and viscid character, and situated lower down in the respiratory tract than the pseudo-membrane, formed, in connection with the membrane above, one of the causes of dyspnoea, and when the *mucine* present was dissolved by these alkaline inhalations, the pus was rendered thinner and more easily expectorated, which he thought was a very important point as regards the efficacy of the treatment. At the late meeting, of which he had spoken, he had stated that in his opinion nothing should be used as an application, by inhalation or otherwise, which was an irritant. Within the past month, however, he had seen the use of such a caustic as nitrate of silver advocated, and he believed that the Academy, as a scientific body, ought to protest against the employment of any such measure. This was the objection he had against the use of bromine, which had been so highly lauded, particularly by one authority in this city; it was too irritating.

Dr. Smith had been more and more impressed, as his experience extended, with the very great importance of

alcohol in the treatment, and whether the disease was due to the presence of a micrococcus or not, its free administration was, as a rule, indicated. It was surprising what large quantities of alcohol were tolerated by the system under the circumstances, and it was no uncommon thing to see a child one year old, taking with advantage, a teaspoonful of brandy or whiskey every hour. He should be glad to make a trial of Dr. Pepper's treatment, as endorsed here to night; but so far as the efficiency of the method was demonstrated by the cases published by Dr. Thallon, he must confess that he was not convinced of its superiority, on account of the character of the cases reported.

DR. JACOBI thought that it was hardly fair to class the calomel treatment with that of the bichloride of mercury, as Dr. Smith had done. It was not a matter of indifference whether we gave a dose of twenty grains of calomel at the beginning of an attack of croup or not. If he gave an adult twenty or thirty grains of this drug, even if it was taken dry on the tongue (in which case less griping would be produced), he always expected such well-marked effects as loose calomel passages. The bichloride was less liable to produce salivation than any other preparation of mercury. It had been stated that if antiseptic agents were given in sufficient strength to destroy bacteria, they would also destroy the cells of the blood. This was indeed true of carbolic acid and all the other ordinary germicides, but it was not true of bichloride of mercury. The body of a child, four or five years old, contained about two and a half pounds of blood; and it had been demonstrated beyond question that one grain of the bichloride was sufficient to destroy all ferment in such a quantity of blood, while it was, at the same time, incapable of destroying the blood-corpuscles.

It had, furthermore, he said, been shown that bichloride of mercury was probably the only germicide which could be introduced into the blood in an unchanged condition. Dr. Welch had stated, at the last meeting of the Academy, that there was as yet no proof that diphtheria was produced by any micrococcus. Since, therefore, the question was still undecided, he would not dwell upon it.

He looked upon the bichloride of mercury simply as an anti-fermentative agent. The practical results of its employment in croup had seemed to him eminently satisfactory, as compared with other agents; and whether a satisfactory explanation of its mode of action could be given at the present time or not, it did not matter; he was willing to wait for that. He would, before closing, again lay stress on the fact that when the bichloride was used, the dose, which should be sufficiently large, should be repeated very frequently, so as to get enough of it into the system as rapidly as possible. In one or two instances he had given as much as a grain in the twenty-four hours, and even a child of five months should receive, at least, half a grain in that period. The dose, however, should not be too large; and since he had known of the effect produced in the case which he had seen with Dr. Forest, he had been more cautious than before, and was also very particular to have the bichloride largely diluted. Given with proper care, there were no bad results whatever from its use.

PHILADELPHIA ACADEMY OF SURGERY.

Stated Meeting, April 7, 1884.

WILLIAM HUNT, M.D., IN THE CHAIR.

DR. WM. G. PORTER related the following

CASE OF BIGELOW'S OPERATION AT TWO SITTINGS.

B. S., white, U. S., single, æt. 17, boilermaker, temperate, admitted to the Presbyterian Hospital on November 12, 1883, had suffered from symptoms of stone in the bladder for about four years previous to admission. General health good, passes urine three or four times a day, and once or twice during night. Urine showed abundance of pus with blood and one-fifth albumen. No trace of urates, phosphates, or tube-casts. On passing a sound, the presence of a stone was readily detected. The patient was exceedingly nervous and sensitive and a great coward, and consequently no attempt was made to ascertain the size of the stone until the patient was prepared for operation. On November 17, he was etherized, and the stone seized with a medium sized lithotrite, showing a long diameter of about two and a half inches and a short diameter of about one inch. The lithotrite was now tightened, and as the stone seemed to crush readily, the operation of Bigelow was decided on. After crushing easily for some time, and considerably diminishing the size of the stone, the ordinary sized lithotrite, which had been used, failed to make any further impression on the stone with any amount of force which it was considered safe to use. The Bigelow evacuator was now introduced, to permit of which the meatus had to be enlarged, and 370 grains of sand and small fragments were evacuated. Some cystitis followed the operation, and nothing more was done until December 3, sixteen days after the first operation, when, being provided with a Bigelow lithotrite, the remainder of the stone was easily broken and 270 grains evacuated, making 640 grains in all.

Considerable oedematous swelling followed the second operation, and in a few days an abscess formed at the junction of the penis with the scrotum, which was evacuated and discharged a large quantity of fetid pus. Urine was discharged through the resulting sinus for a week or ten days, but it gradually closed completely and the patient was discharged. On December 24, a thorough exploration of the bladder failed to detect any evidence of the presence of fragments.

DR. S. W. GROSS suggested that the title of this paper should be changed to "Lithotrity at Two Sitzings." It was not a Bigelow operation, which consists in evacuating the bladder at one sitting, no matter whether it requires twenty minutes or three hours.

DR. PORTER said that Dr. Bigelow, in his original description, after stating that the stone should be comminuted, not necessarily pulverized, went on to say that this operation can generally, not always, be performed at one sitting. The other points to which he draws attention in this operation are the use of a larger tube than usual for evacuation, the immediate evacuation of all the fragments, the thorough washing out of the bladder, and the great length of time which may be safely occupied in the performance of this operation, it being continued under ether one or two hours, if necessary. If requisite, the urinary meatus may be enlarged

to allow the passage of the large tube. Under these circumstances he thought that the title of the paper was correct, and that it was a Bigelow operation. It was done, it is true, at two sittings. It might as well have been done at one if he had had the proper lithotrite. The small ordinary lithotrite would not crush the stone; he removed the small fragments and washed out the bladder. When the patient had recovered from this operation he used the Bigelow lithotrite, and had no trouble in crushing and removing the fragments.

DR. WM. HUNT said that this was simply a question of fact, and he understood that Dr. Gross would insist upon the immediate evacuation of the bladder as an essential part of Bigelow's operation.

DR. PORTER claimed that Dr. Bigelow did not insist on it. In one of the cases which he described, the operation was completed in two sittings.

DR. WILLARD narrated a case of small stone in a man of twenty-eight, who, when he first saw him, was able to get a No. 26 sound through the urethra, but this caused slight pain. He afterwards gradually dilated the urethra until he could pass a No. 31, but each passage of the sound was followed by fever. The introduction of a lithotrite to measure the stone caused a chill which was followed by fever, the temperature reaching 104°. Although he was kept in bed, and quinine and morphia given after each sounding, the temperature has always gone up, sometimes not over 100°. He desired to know whether it would be better to dilate the urethra and crush the stone, or to perform lithotomy.

DR. BRINTON said he would advise lithotomy.

DR. S. W. GROSS concurred.

DR. J. EWING MEARS exhibited a specimen of

CARCINOMA OF THE BLADDER,

which was removed from a man admitted to St. Mary's Hospital March 25, 1884. The man, when admitted, was almost unconscious, and only a very imperfect history could be obtained. He was eighty-two years of age. There was dribbling of urine, a great deal of sensitiveness over the region of the bladder and lower part of the abdomen on palpation and percussion. A catheter was introduced and a large quantity of urine containing a small quantity of blood, pus, and epithelial cells was passed. The case was treated by hot applications over the lower part of the abdomen, the use of a catheter, and a general supporting treatment. The patient gradually sank, and died four days after admission.

At the autopsy, which was made by Dr. R. B. Wetherill, Resident Physician, a fungoid growth was found to spring from the bas fond of the bladder extending to and involving the prostate gland. The growth was symmetrical, occupying the median line of the organ, and about three and a half inches in diameter. It projected about half an inch above the inner surface of the bladder, and was soft to the touch. Before incision of the tumor, the cut surfaces were white and glistening, exuding a white, milky fluid. The deeper portions were more dense. Small, dense, white, circumscribed growths, about the size of a large pea, were found in various parts of the bladder. The bladder was hypertrophied and thickened throughout. At the upper portion there were appearances of incipient gangrene.

Sections were made of the growths, which exhibited under the microscope a fibrous stroma, alveoli filled with epithelial cells; no stroma between the cells.

According to the statement of the patient, the growth was very rapid. The first trouble noticed was twenty-one weeks before admission. The only symptom calling attention to any other condition than that of chronic cystitis was the passage of a small quantity of blood. That did not, however, attract very much attention, as the amount was small. Carcinoma of the bladder of this variety was, he thought, rarely met with.

DR. NANCREDE reported the following case of

TREPHINING FOR BRAIN ABSCESS.

A boy had a punctured fracture of the skull, made with a knife. The blade was removed rather rapidly. The boy had convulsions afterwards. He took out a disk of bone and passed a probe into the substance of the brain, looking for pus or serum, which he expected to find, but could detect nothing. Erysipelas set in, but did not affect the wound. He next had a subnormal temperature, a little nausea, headache, and an occasionally slow pulse.

On the 22d he was reported dying. The right side was paralyzed, the lower extremity more than the upper. When Dr. Nancrede took hold of the flap, he made a slight motion of the left side. He found the dura mater on a level with the opening, and pulsating freely. He incised the dura mater, but not a particle of pus escaped. He passed the aspirator-needle in four directions into the brain substance for a distance of two-thirds of an inch, but no pus was found. He applied a large trephine below in front of the wound. When he had gotten into the diploe, the respirations had stopped, then the pulse at the wrist stopped, and the assistants thought that the heart had stopped. He completed the trephining as rapidly as possible. He opened the dura mater, but not a particle of pus was found. Fortunately, in making pressure, a little pus was seen to ooze through one of the needle punctures, and making an opening into the brain substance at this point, over an ounce of pus escaped. Artificial respiration was then resorted to, but it required considerable time to bring him into a condition where he could be left. He then breathed naturally, regained consciousness, and the paralysis diminished. He lived six and a half days after this, and finally died of sheer exhaustion from a second attack of erysipelas.

Dr. Nancrede said he had not been able to go over the subject very thoroughly, but he was not aware of another instance in which trephining was resorted to after the patient had ceased to respire. The patient was not under the influence of ether.

NEW INVENTIONS.

A CHEAP AND PRACTICAL METHOD OF ELECTRIC ILLUMINATION FOR LARYNGOSCOPY, ETC.

By SOLOMON SOLIS-COHEN, A.M., M.D.,
FELLOW OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION, ETC.

AFTER considerable experimentation, and trial of several of the more or less elaborate forms of "electric laryngoscopes" devised by Helot, Trouvé, and others, I have found a return to "first principles" to furnish at

once the cheapest, most convenient, and most satisfactory method of electric illumination that has thus far come to my notice.

We need simply substitute a small incandescent lamp for the gas or coal-oil flame in the Tobold or other illuminating apparatus. These lamps can be purchased for \$1.50 at any of the electric-supply shops, and can easily be mounted in place, with a current-switch attachment, by any competent workman.

The battery I have used is Flemming's "Universal Battery"—the same employed for galvano-cautery—the constant current from ten cells being sufficient to produce a soft, white light of greater intensity than the coal-oil or gas flame, and inferior only to sunlight.

For ordinary office use, I prefer the Tobold lantern, with adjustable reflector.

For direct illumination, a bull's-eye lens is required, such as is used by Helot and Trouvé; and this can also be utilized for reflection at a distance by those who prefer a reflector worn on the head to that of the Tobold system.

For office use, however, in connection with a head-band reflector, the incandescent lamp with the bull's-eye lantern known as the "Mackenzie Condenser," is superior in illuminating power to Trouvé's instrument ("Photophore"). Mounted on the Mackenzie bracket, with either the Tobold or Mackenzie lantern, this illuminator leaves little to be desired; for should the loop of the lamp burn off, or the battery give out,¹ we can turn on the gas.

CORRESPONDENCE.

THE DANGER OF GLASS VAGINAL SPECULA.

To the Editor of THE MEDICAL NEWS.

SIR: I was summoned yesterday to see—at once—a young married lady, who was suffering, I was told, from leucorrhœa (a flow of whites from the vagina), which does exist as such, but is denied by my friend, Dr. Addis Emmet, who does not describe it in his admirable book because the flow of whites, he says, always comes from the endometrium, and is the consequence of catarrhal inflammation of the mucous membrane of the uterine or cervical cavity and canal. I would refer Dr. Emmet and those gentlemen denying the existence of leucorrhœa in women to the description of the vaginal and vulval mucosa in Charles Heitzmann's *Microscopical Morphology of the Animal Body in Health and Disease*, p. 838, where this author says: "The mucosa of the vagina is raised in folds (rugæ), and in this situation papillæ are present. . . . The papillæ are simple throughout the mucosa, but compound at the height of the rugæ and toward the vestibulum. . . . In the mucosa varying numbers of lymph-corpuscles are found, arranged, sometimes, in circumscribed follicular formations. The covering epithelium is stratified, blending with that of the cervical portion of the uterus. . . .

¹ The same remark applies when the galvano-cautery battery is used for the illuminator, and we desire to change the current and employ it for another purpose. Since the above was in type, I have found that it is only with fresh battery fluid that we can get the best results. With old fluid, the light is no better than gas, if not inferior to it.

Blood- and lymph-vessels produce plexuses above the epithelial cover and below the muscle-layers, which hold a large number of veins. In the vestibulum, the *mucosa* contains small, acinous, mucous glands, which are more numerous around the opening of the urethra and on the clitoris. The Bartholinian glands are also large mucous glands. The hymen is a reduplication of the vaginal *mucosa*, very rich in bloodvessels and nerves. The labia majora are rich in smooth muscles and fat. The clitoris is covered by a *mucosa*. . . . The labia minora are characterized by the presence of numerous sebaceous glands."

It must be evident from the description quoted that in inflammation of the vulva or the vagina, or of both, we have an increased flow of whites, which in Greek is termed *Leucorrhœa*. Why should so-called catarrhal inflammation not occur here as well as in other organs of the body where there is an epithelium or a *mucosa*? Without saying any more regarding the existence of the symptom, leucorrhœa—a symptom like that of diarrhœa occurring in inflammation of the intestinal tract—I wish to call attention to the danger of using glass tubes by women suffering from leucorrhœa, like the patient whom, as I stated above, I was called upon to see, on account of a piece of broken glass lodging in her vagina, which caused bleeding and immense mental anxiety.

The lady was advised by her physician to use salt-water injections into her vagina, to cure her leucorrhœa, and, while inserting the glass tube into her vagina, it broke, and caused the bleeding and the great distress, to relieve which I was summoned in great haste. I found the patient—aged about twenty-three—ghastly pale, with both thighs widely separated, holding on cautiously with her hands to the bedpost. She dared not move, fearing that the glass piece in her vagina might cut her womb off, as she said, especially as she noticed, to her sorrow, blood streaming down her legs. She had ceased to menstruate a week before the accident. I introduced the index finger of my right hand cautiously into her vagina, and, reaching up to the fornix, behind the uterus, I discovered the *corpus delicti*, which I removed, guarded by my fingers. I syringed the vagina of all blood-clots, stopped the hemorrhage, and left the lady—an actress—very comfortable; and I learned next morning that she played her part that evening at the New York Casino, where she is professionally engaged.

I report this case—probably not a rare one—for the purpose of advising physicians to discountenance the use of glass tubes for vaginal douching, and to recommend hard-rubber tubes instead.

I am, yours, very respectfully and truly,

RUDOLF TAUSZKY, M.D.

171 E. SEVENTIETH STREET, NEW YORK.
July 10, 1884.

NEWS ITEMS.

CHOLERA PRECAUTIONS. INSTRUCTIONS TO UNITED STATES CONSULAR OFFICERS.—Secretary Frelinghuysen on Monday instructed, by cable, the consular officers at London, Liverpool, Marseilles, Havre, Bordeaux, Bremen, and Hamburg at once to appoint competent physi-

cians to inspect all vessels and passengers departing for the United States from those ports. The consular officers are instructed to refuse clean bills of health in all cases except upon the recommendation of the sanitary inspector that such bills be given. The consuls are instructed to report by cable any case of infectious or contagious disease known to exist on board of a vessel at the time of her departure for the United States. This course is adopted in order that the health officers in United States ports may have timely warning of approaching danger, and be prepared to take such measures as shall prevent the scourge from gaining a foothold in this country.

The American Consul at London announces that vessels from Europe must have certified clean bills of health from the American consul at the port from which they sail, or they will not be allowed to enter American ports.

It is probable that under the authority conferred by the contagious disease clause of the Legislative, Executive, and Judicial Appropriation Bill, medical examiners will be appointed as attachés to the American consulates at the French ports infected with cholera, whose duty it will be to report periodically upon the progress of that disease.

PRECAUTIONS IN ILLINOIS.—The Illinois State Board of Health, with commendable promptness and celerity, has sent the following circular to the Mayors and Presidents of Village Boards of eight hundred and forty-four cities, villages, and towns of the State:

"At the recent meeting of the State Board of Health, held in Springfield, July 2 and 3, 1884, the following resolution was adopted:

"*Resolved*, That, while epidemic cholera may be excluded from this country by thoroughly enforced quarantine regulations, yet the best attainable sanitary condition of every locality in the State should be secured, so that in the event of Asiatic cholera effecting an entrance, notwithstanding quarantine, the disease may be met and fought under the most favorable circumstances; and the Secretary is, therefore, hereby authorized to take such action as in his judgment will most promptly obtain a thorough sanitary organization of the State, and the adoption and enforcement of the measures necessary to improve its general sanitary condition.

"It is entirely possible that we may escape a visitation of Asiatic cholera this year, although there is yet plenty of time for the disease to reach our shores before cold weather. But even if there were no danger from this source, it should be remembered that everything which is done in the direction of sanitary improvement benefits the general health, reduces the amount of sickness, and lessens the death-rate. An obvious duty, therefore, rests at all times, but more urgently at present, upon those charged with the administration of public-health affairs to take such steps as may be necessary to remedy any defects in the existing sanitary status.

"To this end a general inspection of the entire territory under your jurisdiction should be made forthwith; and all nuisances, or other conditions injurious to the public health, which may be disclosed by such inspection, should be promptly abated. Especial attention should be paid to—

"First. The condition of the water-supply.

"Second. The disposition of night-soil, garbage, and sewage.

"Third. The cleansing of streets, alleys, and other public places.

"Fourth. The supervision of food-supplies, and of market-places, slaughter-houses, and similar establishments.

"Fifth. The general sanitation of every house and its surroundings.

"1. Water is one of the commonest mediums through which cholera spreads; but, aside from this, typhoid and malarial fevers, diarrhoea, dysentery, and other diseases, are caused by impure and polluted water. Hence the necessity of protecting the supply from contamination by surface-washings and drainage of filthy soil or premises, or of wastes from manufacturing establishments, or by leakage through the ground from privy-vaults, cesspools, etc.

"2. Night-soil, garbage, sewage, and all other forms of decomposing organic matter, are highly prejudicial to health, and their foul odors are indications of danger. The various methods for their proper disposal, so as to render them harmless, are well understood, and should be enforced according to the varying conditions of each locality.

"3. Clean streets and alleys, and gutters properly drained and kept free from unsightly and filthy accumulations, are of even greater importance during the heat of summer than at other times. The healthy condition of the atmosphere of a locality largely depends upon the condition of its thoroughfares.

"4. The rapid decomposition of most articles of food during hot weather—the tainting, souring, wilting, or rotting processes—and the derangements of the stomach and bowels caused by the use of such food, indicate the necessity for special supervision at this time of all food-supplies, and of the places where they are prepared, stored, or disposed of.

"5. The foundation of healthy living is, obviously, the individual home and its surroundings. Houses, cellars, yards, and outbuildings should be carefully inspected, and all accumulations of garbage, refuse, and filth of every description should be removed, or, where this is not practicable, they should be rendered harmless by appropriate treatment. No house or premises can be healthy without proper drainage. If this is not secured by sewers or underground drains, then recourse should be had to surface drains, so as to prevent the possibility of stagnant water under the dwelling or in its vicinity. Cellars should be dry, clean, and well ventilated, so that they may not generate foul air to be drawn up through the house.

"It is desired that this work of inspection, and remedying of evils and defects, be begun at the earliest practicable moment, and a preliminary report be made to this office, covering, in a general way, the existing sanitary condition, and the measures adopted and enforced for its improvement."

QUARANTINE IN LOUISIANA.—The Louisiana State Board of Health has adopted the following:

Whereas, Cholera is known to exist in Toulon and Marseilles in epidemic form, be it

Resolved, That the President of the Board instruct

the quarantine officers at all the quarantine stations in the State to detain all vessels coming from those ports, or any other ports where cholera may exist, until further orders from the Board.

FOREIGN PRECAUTIONS.—The Cuban authorities have ordered that all vessels arriving from French Mediterranean ports, or from any port at which cholera prevails, shall be detained seven days for observation if they bring a clean bill of health, or ten days if they bring an unclean bill. If they had or have cholera on board they will be subjected to a rigorous quarantine at the station of Mariel or Santiago de Cuba. The order also applies to all vessels from Asia or Africa.

The Spanish Government has ordered a quarantine against vessels arriving from German ports because the precautions taken by Germany against the spread of the cholera are not deemed sufficient.

Italy is now inaccessible except *via* Austria. English passengers by the Indian mail can no longer get through by way of St. Gothard, as hitherto. Quarantine was established July 11th, at Chiese. The only way of getting to Italy now is *via* Vienna.

The Austrian Government has asked the Porte to cooperate with it in the adoption of measures to prevent the introduction of cholera into Turkey and Austria.

A quarantine of two weeks has been established at Odessa against vessels arriving from French Mediterranean ports, or other ports at which cholera is known to prevail.

During the cholera epidemic vessels from infected ports are forbidden to land passengers or cargo at any port in Portugal.

The Colombian authorities have ordered the enforcement of quarantine regulations in respect to vessels arriving at Panama from Europe.

DR. KOCH ON THE CHOLERA EPIDEMIC.—The *N. Y. Herald* of last Saturday contains a special cablegram, giving the report of an interview, at Toulon, with Dr. Koch, published in the *Gaulois* of the preceding day. Dr. Koch is represented to have said that "all the post-mortems made confirm the results of my first investigation, which put the Asiatic character of the scourge beyond question. I have found the same phenomena, as in the cases which I investigated in India. The microbes were identical. I found numbers in the body of that soldier, Besnard, whose post-mortem I made on Sunday evening. Indeed, I found more than I had seen in Egypt. Messrs. Strauss and Roux, who were standing by, also recognized the presence of the Indian microbe in Egypt, but had always seen it mixed with others: whereas in post-mortems that I have made here the Indian microbes outnumbered the others immensely."

"The microbe is rarely met with in the stomach. Gastric disorders are not favorable to it, so it takes refuge in the small intestines, where it can easily multiply. The microbe in the intestines causes diarrhoea and vomiting, leading to thickening and chilling of the blood, then it secretes an intoxicating poison, which causes the dry, instantaneous cholera—*foudroyant sec*—that is, cholera without diarrhoea.

"Contamination is not caused by air, but by absorption of microbes infecting food, especially water and solid food introduced into the digestive tubes. Hence

I advised the members of the Sanitary Committee to shut up the wells and counsel the people to drink boiled water, or water from non-infected places, or light mineral waters. It also explains the necessity of taking only well-cooked food, peeled fruits, vegetables and preserves. Remember, microbes die if exposed to a high and especially to a dry temperature.

"I hold that microbes are transmissible only by excrement or objects soiled by excrement. Consequently the first precaution to take is to subject the linen of cholera patients to heat, hot air, and phenic acid more or less concentrated. Microbes cannot live in concentrated solutions of phenic acid or in a dry atmosphere. They develop and multiply in the damp. They have been found in ponds in cholera countries. No soiled object is the least dangerous when once it is dry, for the microbe has become powerless to reproduce itself; indeed, it is dead.

"The theory of the destruction of the microbe by dryness leads me to advise the closing up and drying of contaminated apartments for several days, and to pronounce the disinfecting of luggage, letters, and travelers ineffectual.

"The practice of watering streets and boulevards is dangerous. It favors the conditions needed for the reproduction and propagation of microbes. It would be preferable to leave the streets dry and dusty.

"I think I may say that, considering the precautions taken by the naval authorities, cholera was imported on some merchant ship, probably English. They do not scruple on English vessels to hide deaths which occur on voyages or to falsify logs.

"I disapprove of crowds altogether. All public fêtes and fairs should be forbidden."

YELLOW FEVER has appeared in Guaymas, Mexico, to such an extent as to be no longer denied, and several cases are reported at Mazatlan, and the inhabitants are fleeing to the mountains.

Deaths from this disease in Havana during the month of June numbered sixty-eight, thirty in the Military Hospital, and the remainder among the civilians.

THE PLAGUE has made its appearance at Pskov, Russia, and is represented to be entirely beyond control,

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM JULY 8 TO JULY 14, 1884.

CLEMENTS, B. A., *Major and Surgeon*.—Also directed to relieve Surgeon J. P. Wright of his duties as Acting Medical Director, Department of the Missouri.—*Par. 1, S. O. 138, Headquarters Department of the Missouri*, July 8, 1884.

PROMOTIONS.

To be Assistant Surgeons with the rank of Captain, after five years' service, in accordance with the Act of Congress of June 23, 1874:

Assistant Surgeon JOHN J. KANE, June 3, 1884.
Assistant Surgeon JOHN M. BANISTER, June 3, 1884.
Assistant Surgeon AARON H. APPEL, June 3, 1884.
Assistant Surgeon CHARLES RICHARD, June 3, 1884.
Assistant Surgeon W. FITZHUGH CARTER, June 3, 1884.

OFFICIAL LIST OF CHANGES OF STATIONS AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE-HOSPITAL SERVICE, FROM APRIL 1 TO JUNE 30, 1884.

BAILHACHE, P. H., *Surgeon*.—Detailed as Chairman of Board to examine candidates for appointment into the Revenue Marine Service, May 17, 1884.

VANSANT, JOHN, *Surgeon*.—To proceed to Empire City, Oregon, as inspector, April 2, 1884.

HUTTON, W. H. H., *Surgeon*.—Granted leave of absence for twenty-five days, May 14, and June 9, 1884.

MILLER, T. W., *Surgeon*.—Granted leave of absence to attend the meeting of the American Medical Association, May 1, 1884. To proceed to Pittsburg, Pa., Ashtabula, Ohio, Buffalo, N. Y., and Detroit, Mich., as inspector, May 10, 1884.

WYMAN, WALTER, *Surgeon*.—To proceed to Crisfield, Md., as Inspector, April 11, 1884. Detailed to represent the Marine-Hospital Service as delegate to the American Medical Association, April 17, 1884. Detailed as President of Board for physical examination of candidates for appointment as cadets in the Revenue Marine Service, May 20, 1884. To examine cadet-graduates, Revenue Marine Service, as to physical qualifications, May 31, 1884. Detailed as member of Commission to inspect United States buildings at quarantine station on the Delaware River, June 16, 1884.

AUSTIN, H. W., *Surgeon*.—Granted leave of absence to attend the meeting of the American Medical Association, May 2, 1884.

GASSAWAY, J. M., *Surgeon*.—When relieved by P. A. Surgeon Mead, to proceed to Portland, Maine, and assume charge of the Service, April 16, 1884. Granted leave of absence for thirty days, May 28, 1884.

STONER, G. W., *Passed Assistant Surgeon*.—When relieved by Surgeon Gassaway, to proceed to Cairo, Illinois, and assume charge of the Service, April 16, 1884. When relieved by Surgeon Gassaway to report in person to the Surgeon-General, June 20, 1884.

IRWIN, FAIRFAX, *Passed Assistant Surgeon*.—Granted leave of absence for twenty-one days, June 19, 1884.

MEAD, F. W., *Passed Assistant Surgeon*.—When relieved by Assistant Surgeon Devan, to proceed to Philadelphia, Pa., and assume charge of the Service, April 16, 1884. Detailed as Recorder of Board for physical examination of candidates for appointment as cadets in the Revenue Marine Service, May 20, 1884.

CARTER, H. R., *Passed Assistant Surgeon*.—To inspect unseviceable property at the San Francisco Hospital, May 24, 1884.

WHEELER, W. A., *Passed Assistant Surgeon*.—To inspect unseviceable property at the Chicago Hospital, May 24, 1884.

BENSON, J. A., *Passed Assistant Surgeon*.—Granted leave of absence for thirty days, April 14, 1884. When relieved by P. A. Surgeon Stoner, to report to him for temporary duty, May 19, 1884.

BANKS, C. E., *Passed Assistant Surgeon*.—Detailed as member of Board to examine physically candidates for appointment into the Revenue Marine Service, May 17, 1884. To inspect unseviceable property at Baltimore, Md., New York, N. Y., and Boston, Mass., May 26 and June 2, 1884.

BENNETT, P. H., *Assistant Surgeon*.—Granted leave of absence for twenty days, June 28, 1884.

DEVAN, S. C., *Assistant Surgeon*.—To proceed to Port Townsend, W. T., relieve P. A. Surgeon Mead, and assume charge of the Service, April 14, 1884.

URQUHART, F. M., *Assistant Surgeon*.—Granted leave of absence for thirty days, May 22, 1884.

YEMANS, H. W., *Assistant Surgeon*.—To report to Captain M. A. Healey for duty as medical officer during cruise of Revenue Cutter "Corwin," April 16, 1884.

GLENNAN, A. H., *Assistant Surgeon*.—To proceed to Mobile, Ala., for temporary duty during sickness of P. A. Surgeon Goldsborough, June 17, 1884.

APPOINTMENT.

BROOKS, STEPHEN D., M.D., of Massachusetts, having passed the examination required by the Regulations, was appointed an Assistant Surgeon by the Secretary of the Treasury, May 15, 1884. (Dr. Brooks had previously served as an Acting Assistant Surgeon from March, 1883 to May, 1884.)